

Rock Products

DEVOTED TO
Concrete and Manufactured
Building Materials

Volume X.

CHICAGO, ILL., DECEMBER 22, 1910.

Number 6.

CAROLINA PORTLAND CEMENT COMPANY

We are the largest distributors of Portland Cement, Lime Plaster, Fire-brick and General Building Material in the Southern States, and have stocks of Standard Brands at all of the Atlantic and Gulf Seaports, and at our interior mills and warehouses, for prompt and economical distribution to all Southern territory. Write for our delivered prices anywhere. Also Southern agents for the "Dehydratine's" waterproofing material. "Universal," "Acme" and "Electroid" Brands Ready Roofing. Get our prices.

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THE NEW STANDARD

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UNION MINING COMPANY

Manufacturers of the Celebrated

DEVOTE a special department to the manufacture of Brick particularly adapted both physically and chemically to

**Lime Kiln and
Cement Kiln
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Large stock carried. Prompt shipments made. Write for quotations on Standard and Special shapes, to

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Mount Savage, Md.**

CAPACITY, 60,000 PER DAY.
ESTABLISHED 1841.

MOUNT SAVAGE FIRE BRICK

GOVERNMENT STANDARD.



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PURE OAK TANNED LEATHER BELTING

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Capacity, 3000 barrels daily

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YOU know what the linings for your cement and lime kilns cost per thousand brick but do you know how much per ton output? That is the cost that is vital, that's why we are anxious you should know. Write us.

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PITTSBURGH :: PENNSYLVANIA

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Manufacturers of the
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Plant located at Ironton, O., within easy access to seven States, namely, Ohio, Indiana, Kentucky, West Virginia, Virginia, Tennessee and North Carolina.

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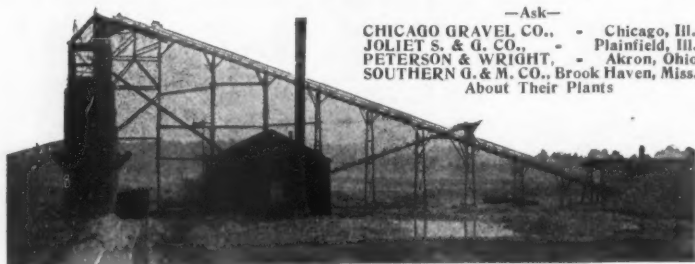
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High Tensile Strength, Finely Ground,
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"THE BEST IS NONE TOO GOOD"
**HIGHEST GRADE of
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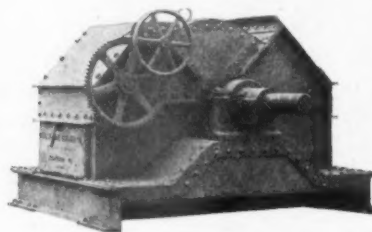
Every Barrel Absolutely Uniform.

R. R. facilities especially adapted
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Capacity 1,500,000 bbls. Yearly.

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"PENNSYLVANIA" HAMMER CRUSHERS



For Pulverizing Lime-
stone, Lime, Cement Rock,
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Main frame of steel; "Ball
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Bearings; forged Steel Shaft;
Steel Wear Liners; Cage
adjustable by hand wheel
while Crusher is running.
No other Hammer Crusher
has such a big Safety Factor.

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New York Pittsburgh



"CHICAGO AA"

1,250,000 Barrels Annually

HIGHEST QUALITY
"THE BEST THAT CAN BE MADE"

"Chicago AA" Portland Cement is best adapted for use in making concrete because of its absolute uniformity, fineness, prompt hardening and attractive color. "Chicago AA" is second to none, and every barrel is fully guaranteed to meet the requirements of the Standard Specifications.

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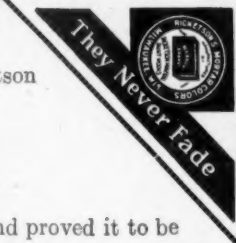
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of time and weather tried out Ricketson
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COLOR

for Mortar, Brick, Cement, Stone, etc., and proved it to be
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MILWAUKEE, WISCONSIN



Tell 'em you saw it in ROCK PRODUCTS



Rock Products

DEVOTED TO
Concrete and Manufactured
Building Materials

Volume X

CHICAGO, ILL., DECEMBER 22, 1910

Number 6

Fire Hazard In Schools Eliminated

Reinforced Concrete Supplies the Necessary Elements of Safety
Without Extra Cost.

By John T. Simpson.

[Paper read at Seventh Annual Convention of the National Association of Cement Users.]

On the 4th day of March, 1908, there was flashed over the telegraph wires to every newspaper throughout the length and breadth of this land, the news of a great disaster. In a schoolhouse in Collingwood, Ohio, a suburb of Cleveland, 165 children lost their lives through the breaking out of a fire during school hours.

The building, known as Lake View School, was of typical school-house construction—brick walls, wooden floors, partitions, stairs and corridors. The entrance doors to the building, hinged to swing into the corridor instead of out, were largely responsible for the large loss of life, as these doors being closed and the children crowding behind, made it impossible for them to be opened. The usual so-called fire protection, in providing iron stairs or fire escapes, was installed on the building, but seemed to be of no avail to prevent loss of life.

The conflagration was supposed to have started by the overheating of the boiler plant, which set fire to the wood floors directly over and which was quickly communicated to the building, and, despite the efforts of the people that were attracted by the fire, they were compelled to stand helplessly by and see the pupils burnt to death.

This frightful loss of life, lead the writer, together with his associates, to take up seriously the investigation of fireproof schools of reinforced concrete. Prior to this, endeavors had been made to interest various boards of education in the fireproofing of brick buildings. It was found, however, that the architects would often rather cut out the fireproof construction, if the cost exceeded the appropriation, than change the architectural features of the building to bring the cost down, and with

the old style of steel beams and fireproof arches it was generally found impossible to bring the prices within the amount available.

A few weeks after the Collingwood fire, the Board of Education at Irvington, N. J., brought out plans for the erection of a four-class room building, and upon presenting the matter to them they consented to have an alternate proposition submitted on a concrete basis. The original design called for typical brick walls with wood floor construction. When the bids were received it was found that a

have adopted this method of construction for all new school houses.

While this building was in progress of construction the Board of Education of Summit, N. J., who were planning to erect a nine-class room and assembly room building, visited the work and were so well pleased with the construction that they adopted reinforced concrete for their new Lincoln School.

The neighboring town of Chatham, N. J., a few months later obtained bids on both brick and wood and reinforced concrete. The result of the bid could be built for the same price as the building ding showed that a reinforced concrete building of brick and wood. Unfortunately, however, as is often the case, the appropriation was made before the plans were drawn and as the bids for a brick and wood building were taken on separate items, the board was able to contract for as much of the building as the appropriation would provide for, and later made another appropriation to finish the work. This building is an exact duplicate, in floor plan, of the building adopted about the same time by the Board of Education as Madison, N. J., for their Central Avenue School and which building was built in reinforced concrete.

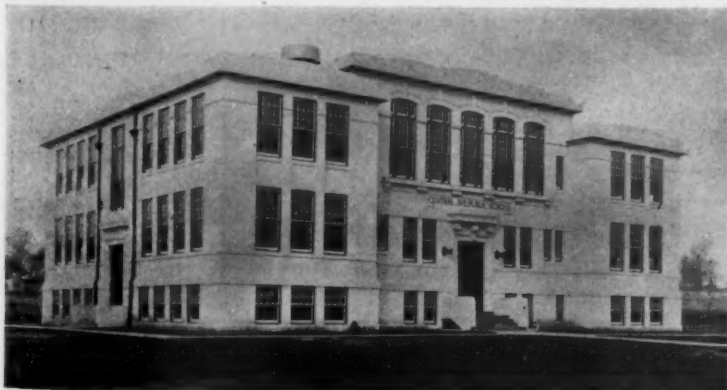
It should be noted that in the Chatham Building the second story walls were but eight inches thick, the cornices were made of wood, the flashings of tin and the ceilings of stamped metal in order to keep the cost as low as possible; but, notwithstanding this, the price for the reinforced concrete building was the same as that paid for the brick and wood structure.

At Millburn, N. J., competitive bids were taken on brick and wood and reinforced concrete on a four-class-room building. The average bid on the brick and wood basis was five thousand dollars (Continued on page 63.)



PUBLIC SCHOOL No. 5, IRVINGTON, N. J.

reinforced concrete school could be built for three hundred dollars less than the best prices received on the basis of brick and wood, and as a result to the Town of Irvington, N. J., must be given the credit of being the first to adopt this type of building for public schools. After two years of service the building has proven so satisfactory that they



CENTRAL AVENUE PUBLIC SCHOOL, MADISON, N. J.



CHATHAM PUBLIC SCHOOL, CHATHAM, N. J.

THE SAME PLANS EXPRESSED IN CONCRETE AND IN BRICK AND WOOD.

Power & Mining Machinery Co.

MILWAUKEE, WIS. U. S. A.

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*"Half the size,
Half the weight;
Half the height,
Half the freight."*

TO WHICH MIGHT ALSO BE ADDED:

*"Half the efficiency,
Half the life;
Half the success,
Double the strife."*

All the above at the same price of a real crusher, too, such as the

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McCULLY CRUSHERS ARE NOT SOLD BY RHYME BUT BY REASON

By reason of their unequaled capacity and wearing qualities on rock and ore of any degree of hardness, and **WITHOUT MELTING ANY BABBITT.**

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By reason of their unequaled efficiency under any and all conditions of service.

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By reason of many other "reasons",—too numerous to mention here, but which are contained in our new Catalog No. 4-R which is just off the press.

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ROCK CRUSHING MACHINERY

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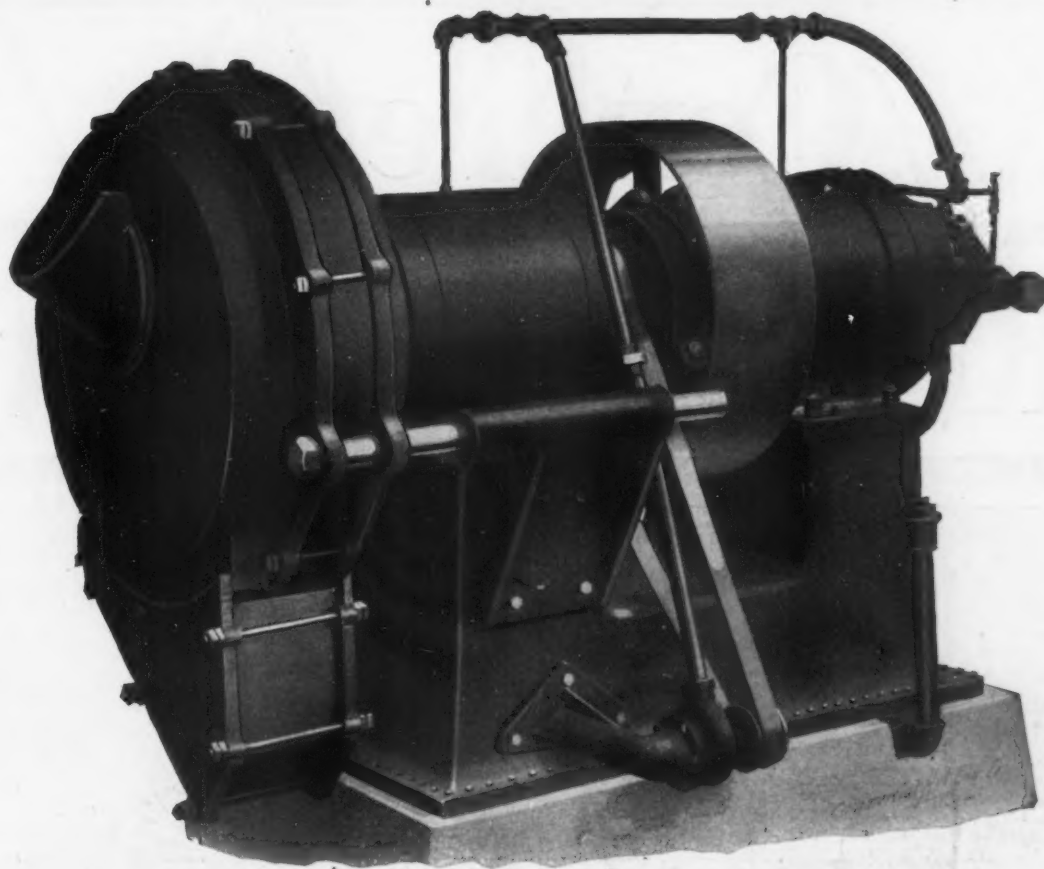
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SUCTION GAS PRODUCERS

Write for Catalogs on any of Above, Mentioning this Journal.

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To Crusher Users:

What SIZES of Crushed Stone SELL Most Readily?

Why not make a specialty of these sizes?

The SYMONS DISC CRUSHER will do your work.

It is adjustable.

It makes any size between 3 inch and 1-4 inch.

It is "at home" crushing gravel, wet or dry.

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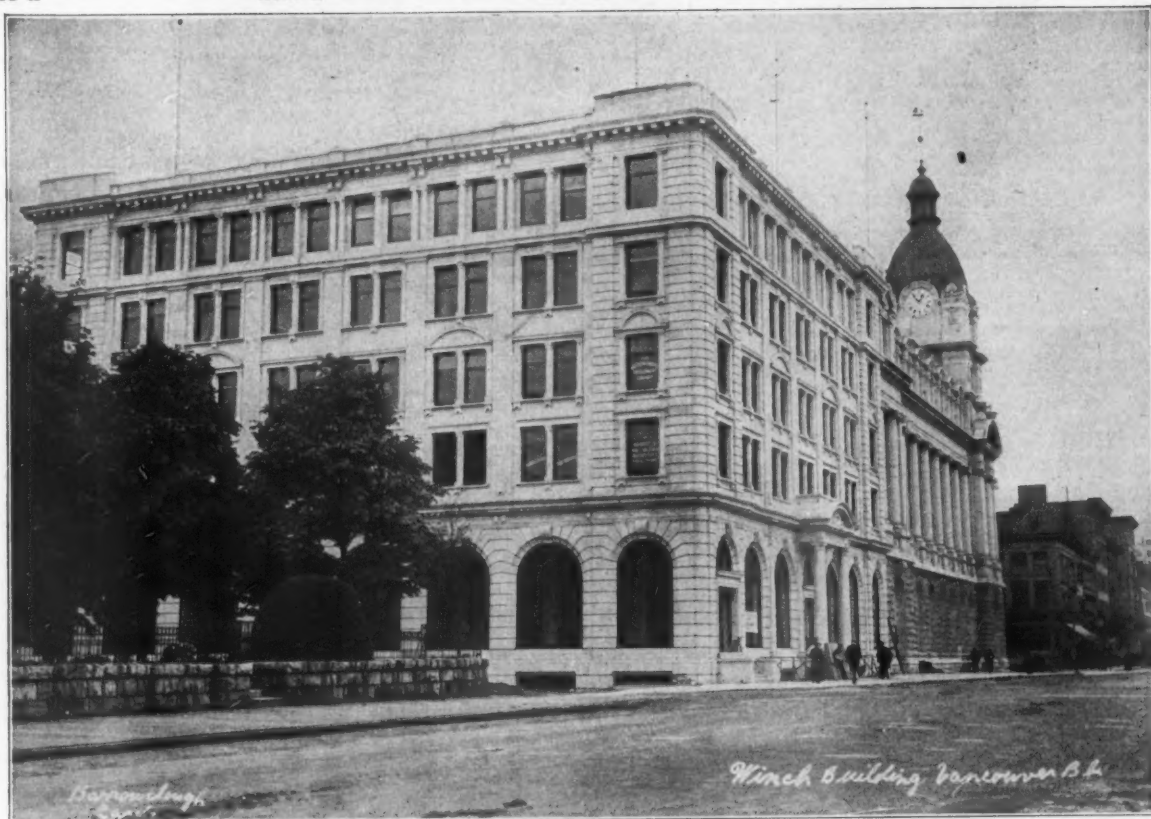
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MILWAUKEE, WIS.

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Triangle Mesh Concrete Reinforcement



Winch Building, Vancouver, B. C.

Triangle Mesh reinforcement used.

Made by
American Steel & Wire Co.

CHICAGO, NEW YORK, DENVER, SAN FRANCISCO.

WRITE FOR ILLUSTRATED PAMPHLET

United States Steel Products Co., 30 Church St., New York., Export Representatives

**MR. ARCHITECT—
MR. CONTRACTOR—
MR. ENGINEER—**

WHEN you want a coating for concrete that will not destroy the desirable, distinctive texture of concrete, will give perfect satisfaction, will not chip, flake nor peel off, but will become a part of the material itself and will absolutely protect your stucco or concrete construction against the ravages of dampness as well as give it any tint you desire, apply **BAY STATE** Brick and Cement Coating.



We can give you the names of some of the largest mills, public and private buildings, as well as those of leading architects, who have used this coating with perfect satisfaction. It is much more durable than either lead or cold water paints and can be applied to a damp surface.

It will lessen the insurance rate because it has been endorsed as a Fire Retarder by the National Board of Fire Underwriters. Ask your dealer for it.

Address us for our color cards and descriptive matter No. 7.

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**Paint and Varnish Makers
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**Waterproof Portland
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**Seven Cents per lb. F. O. B.
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Resists action of alkalis, sewage, sea water, gases and acid in solution. Waterproof under any pressure to which concrete structures are subjected.

We suggest and invite comparison of our unsolicited test reports.

We loan free of charge a hand or power mixing machine

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Prevents dusting and staining of cement floors.

Prevents discoloration of exterior cement and stucco surfaces.

It Is Waterproof. Made in white and colors.

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Ceresit means 16 years' experience in waterproofing research. Ceresit Paste is added to the water used in mixing mortar or concrete. With the water the Ceresit Paste penetrates to all parts of the concrete or mortar.

Ceresit is now being used for the Harper Memorial Library (Chicago University) which is more than an ordinary waterproofing job. There is a reason why Ceresit is so widely known all over the world. Insist upon Ceresit being specified for your next building.

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Crushed Stone and White Lime

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Lime Kilns at Portland, Ind.—Crushers at all 3 Quarries

Write the Plant nearest your Work for Prices

CRUSHED STONE, all sizes, **SCREENINGS CLEAN**

Connections with 6 Railroads

Modern Machinery and Screens

Banner Hydrate Lime

HIGH MAGNESIA FINISHING LIME

Manufactured by the

National Mortar & Supply Company

Office at Pittsburgh, Pa.

Works at Gibsonburg, Ohio

Enlarged capacity

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WORKS AT

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Ohio and Indiana White Finishing Lime, Ground
Lime, Lump Lime, Fertilizer, Hydrate Lime,
Cement, Plaster, Hair, Etc., Etc.

Capacity
8000 Barrels
Per Day

MAIN OFFICE: Huntington, Ind. Branch Offices: Marion, Ohio.

Greeting:

We take this means of expressing our appreciation to our many friends and patrons, of the very liberal patronage accorded us this past year. Assuring you that every effort will be made to merit your continued orders, and wishing you all a very Merry Christmas and a prosperous New Year, we are,

Very truly,

The Scioto Lime & Stone Co.
Delaware, Ohio

CROWN HYDRATE

HIGH CALCIUM HYDRATED LIME

At present prices you can waterproof, improve the color and strengthen the texture of all cement construction and actually **save money**, because the Hydrate **replaces** the same amount of cement (15 to 25%).

Kritzer Vacuum Process

MARBLEHEAD LIME COMPANY

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GLENCOE LIME AND CEMENT CO.

Manufactures **LUMP AND HYDRATED LIME AND LIMESTONE FOR FLUXING**

Dealers in **LUMP AND HYDRATED LIME, CEMENT, PLASTER, MORTOR COLORS, METAL LATH, CORNER BEAD, CHANNEL IRON, ETC.**

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In the Southeast

are advantageously located deposits of Cement Rock. Sands, Marbles, Granites, Limestones and other Building Stones awaiting development. The Southeastern States are growing more rapidly than any other section, and unsurpassed opportunities are found in them. The Southern Railway, Mobile & Ohio Railroad, Georgia Southern & Florida Railway and Virginia & Southwestern Railway give shipping facilities to all portions of the country.

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Brown Hydraulic Lime, Austin Hydraulic Cement, Jasper Wall Plaster, Brick, Stone

CEMENT WORKS: Austin, Minn.
PLASTER MILL: Ft. Dodge, Iowa
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The Standard Finishing Lime

must be a material which has passed successfully every test for efficiency, economy and reliability.

Tiger Brand White Rock Finish

has passed all of these tests and proven itself worthy of the confidence of the ablest men in the mason and plastering trades in 22 States in the Union. It is the standard by which all other brands are measured.

May we send you a quotation?

The Kelley Island Lime & Transport Co.
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MONARCH HYDRATED LIME

Cheaper and Better than LUMP LIME



Its value to you is greater because—

- It costs less to handle—
- It can be thoroughly soaked in 24 hours—
- No screening required—
- Carries more sand—
- Gauges with a third less plaster—
- Spreads further—
- Easier—
- Will not air slack—

You will be a MONARCH MAN if you once try
MONARCH HYDRATED LIME.

Our prices satisfies. Write us.
"We ship sudden"

The National Lime & Stone Co.

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LIME

Rotary Kiln Process, burned with Natural Gas.

Our "Wet Process" hydrate scientifically slaked and cured in large vats, dried, milled and put up in Bates Valve Bags, 40 lbs. each. A perfect product.

The Best Yet Produced.

Lump Lime, car lots.

Dolomite, for Basic flux and furnace uses.

Farnam "Cheshire" Lime Co.

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Celebrated Cheshire "Finishing" Lime

Well known throughout New York and the Eastern States as the finest finishing lime manufactured. The special feature of this lime is its quick and even slacking, thus preventing any cracking or checking when put on the wall. It is the best lime used in the country today for all

HIGH GRADE FINISHING WORK

Selling Department, 39 Cortlandt St., N. Y., C. J. CURTIN, Pres't.

MITCHELL LIME

Is Chemically Pure and Practically Free from Waste

The Strongest White
Lime on the Market.
Used and recommended
by Sand-Lime Brick
Manufacturers, Chemists,
Soap and Glue Works,
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Prices Cheerfully Submitted

Mitchell Lime Company

MITCHELL, :: :: INDIANA

Tell 'em you saw it in ROCK PRODUCTS

Hydrated Lime

Bulletin No. 37

Hydrated lime is comparatively new, consequently it encounters many skeptics and some adverse criticism. But so does everything else. Not so many years ago it was the common belief that Portland cement, as good as that produced abroad, couldn't be made in this country. We all know now how foolish that belief was. But Hydrated Lime is coming to the front rapidly and making just as much progress as Portland cement did. However, you may say, "Well I tried some hydrated lime and it didn't work out, but the scheme of selling slaked lime is all right if it can be made right." The foregoing is a good criticism of the hydrated lime industry up to the present time but it is no disgrace. Every manufactured article has to make a start and most of them make several false starts before all the facts in the case are worked out, and hydrated lime is no exception.

However most of the difficulties of manufacture have been overcome and hydrated lime can be made now as it should be and the progressive manufacturers are doing it.

Of what benefit now is hydrated lime to the dealer and what advantage has it over quicklime? This query covers a broad field and much could be written, so perhaps a brief discussion will not be out of place here. As a general statement it can be said that hydrated lime possesses the good qualities of quicklime without its drawbacks. In other words, properly prepared hydrated lime is all lime putty, with all the overburned particles, grit, stone, air slacked lime, etc., removed in process of manufacture. Hence hydrated lime can be purchased in quantity, thus securing a better price, and the dealer takes no risk of losing anything on the transaction as he buys only powdered lime putty which he can keep indefinitely.

Further, hydrated lime will always do a satisfactory job. In plastering there is no possibility of "pitting" and "popping", as the impurities that caused this have been removed in process of manufacture. In brick work quite an expense is saved in the cost of making mortar by the elimination of the labor of slacking. The mortar can be made, tempered and carried to the wall by the same man.

And finally to the dealer who handles and pushes hydrated lime a much broader business field is opened. For instance, in the domestic uses alone hydrated lime can be sold where quicklime would be impossible; as dry dusting in poultry houses; making tree sprays accurately and quickly; making prepared white washes; disinfectants; cleaning powders, and numbers of other products.

Our business is the designing and constructing of Hydrating plants. To make this up-to-date material, we have the only process that has proved successful in hydrating a High Calcium and Dolomite limes.

It requires about three to four months to build a plant; why not take this matter up with us now and get ready for business?

When small per cents of hydrated lime are added to concrete it is an advantage in a number of ways:

- (1) The concrete works easier under the trowel. It finishes easier.
- (2) It prevents drying out as quickly as it otherwise does.
- (3) It improves the color of the finished work.
- (4) It makes the concrete more impervious to water.
- (5) It improves the strength.

When small per cents, say 10 to 25 per cent, is added and well mixed the finely divided, flaky nature of the Hydrate reaches every part of the mass. On account of its lightness it follows the tendency of the moisture to work to the surface. In so doing the granular particles becomes coated with thin film of Hydrate and the mass offers less resistance to the workman's tools. Mixing is therefore easier. When the finish coat is put on the same is true, and by the time this is well worked in place there is sufficient Hydrate present at surface to make floating and troweling easier. The finisher can do this important work much faster and easier.

The people of the United States are large users of lime and will be larger users when it is made easier to handle and more attractive to the consumer than as it is now being offered.

So, then, there are three factors which speak for hydrated lime and which are bound to make its use increase and the wise and progressive dealers will recognize them, viz:

1. The risk of loss incident to the handling of lime with hydrated lime is reduced to a minimum. Right here is a profit to the dealer in hydrated lime that the man who refuses to handle it doesn't enjoy.

2. A more satisfactory product is offered to the trade and complaints and allowances to contractors are eliminated. Here is more money which ordinarily is figured by the dealer as profit when he sells the lime, but which he usually doesn't realize when the contractor pays his bill.

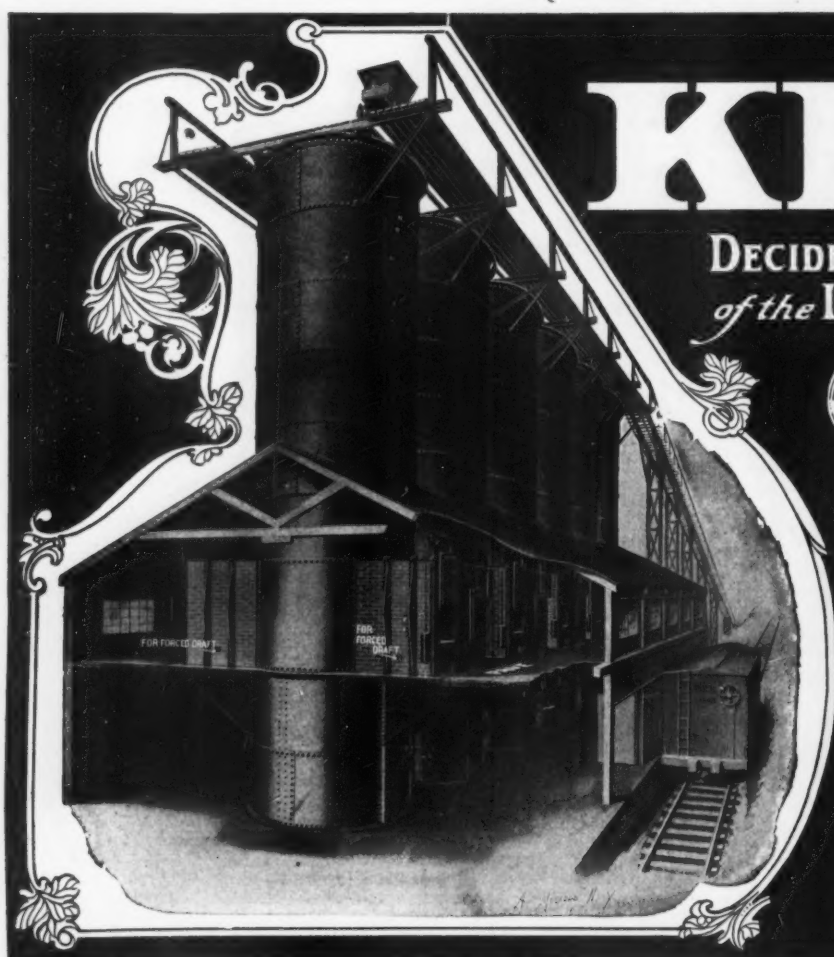
3. A broader market is offered and a steadier all around business can be enjoyed as well as a wider range of trade reached.

Now with these three factors in its favor can any one conceive of the possibility of hydrated lime not succeeding and being more and more used every year? Impossible! And lime dealers must ride along with the ever-increasing demand, for it will never be stopped or turned back.

Hydrated lime has revolutionized the lime business for the consumer and the dealer as well. The consumer has recognized the advantages of hydrated lime and responded and it is up to you, Mr. Dealer, to furnish what your trade wants and incidentally reap the benefit of an increased margin of profit which after all is what we are in business for. [DEALERS RECORD.]

The Kritzer Company
115 Adams Street
CHICAGO, ILLINOIS

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KILNS

DECIDE *the* EARNING CAPACITY
of *the* LIME MANUFACTURING PLANT

THE KEYSTONE LIME KILNS (Patented)

*are famous money makers
and express the highest type
of modern development.
There's none quite so good,
and the price is right.*

FULL PARTICULARS
WILL BE CHEERFULLY FURNISHED

STEACY-SCHMIDT
MANUFACTURING CO.
YORK-PENNA

The Bradley Producer

Gas Process for Burning Lime.

Four and three-quarter pounds of lime to one
pound of coal on a large output is now being
secured every day.

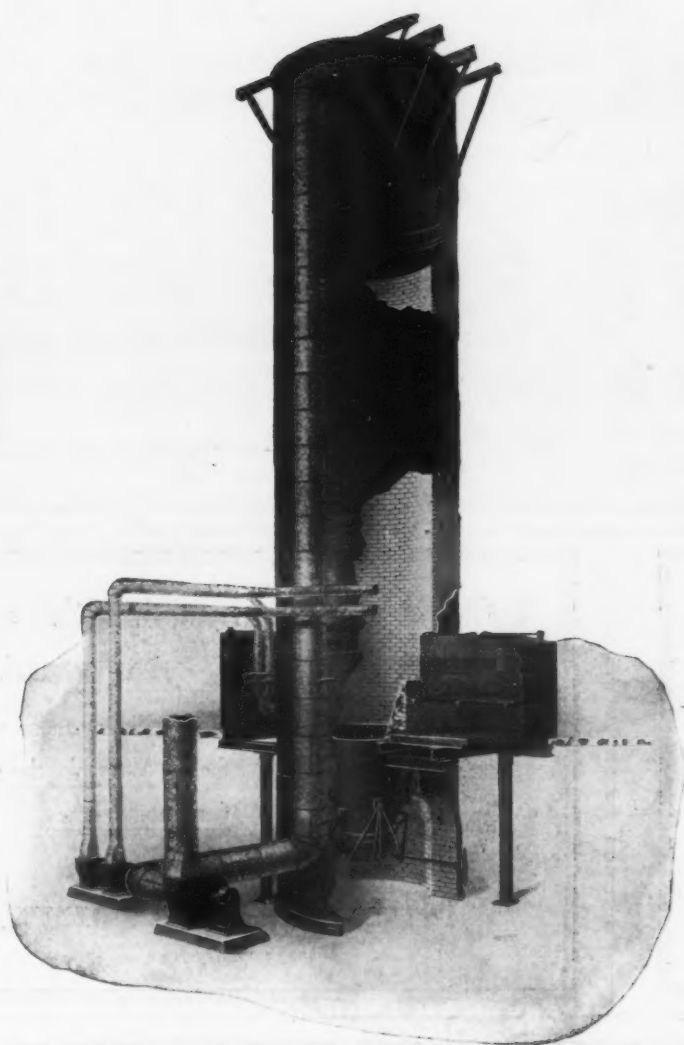
Does that look like economy to you?

===== RESULTS GUARANTEED =====

Duff Patents Company Frick Building
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MORE LIME AND BETTER LIME AT LESS COST



SECTIONAL ELEVATION OF THE STANDARD DOHERTY-ELDRED
COAL FIRED LIME KILN

The problem of economical lime manufacture is largely a problem of combustion economy—of utilizing in the fullest degree the heat value of the fuel used in lime burning.

Our years of experience as combustion engineers have been applied to this problem and the result is our new line of lime kilns now offered to the lime burning industry.

We call the attention of up-to-date lime manufacturers to the following equipment:—
The Doherty-Eldred Coal Fired Kiln
The Doherty Producer Fired Kiln
The Doherty Oil Fired Kiln

This is a line of kilns unequaled in diversity, durability, economy and capacity. They represent the most advanced ideas, the best materials and construction, and a thorough understanding of the conditions involved.

In the design of these kilns, our object has been to produce more lime and better lime at less cost than any other kilns on the market, and to maintain this performance with the minimum of up-keep charges.

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We have issued a new Bulletin, No. 4, on "Lime Kilns and Lime Burning Equipment," which will be sent on request.

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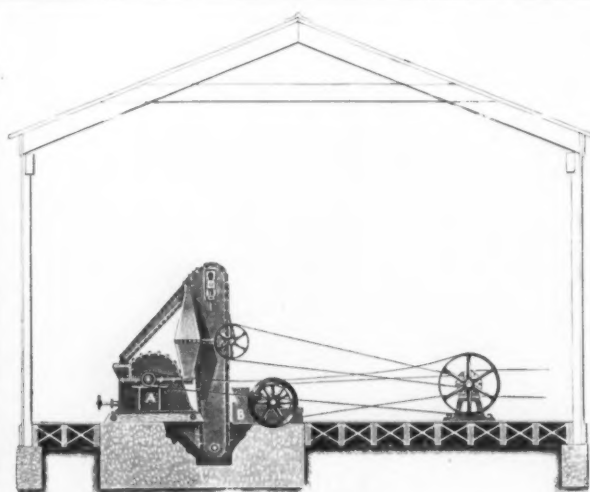
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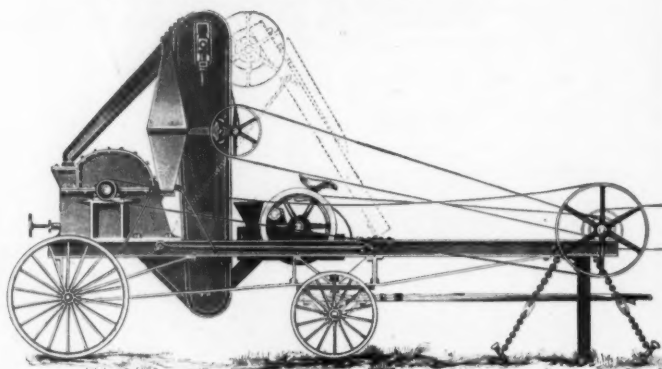
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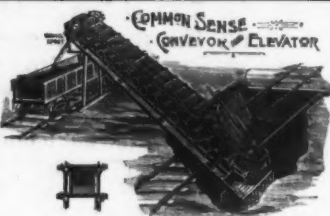
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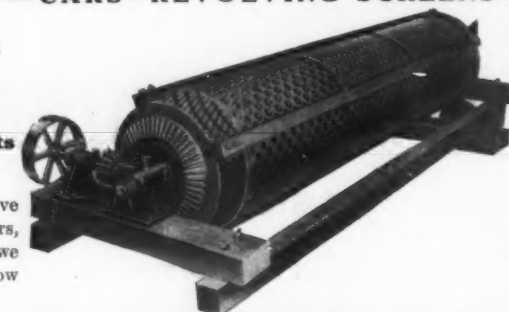
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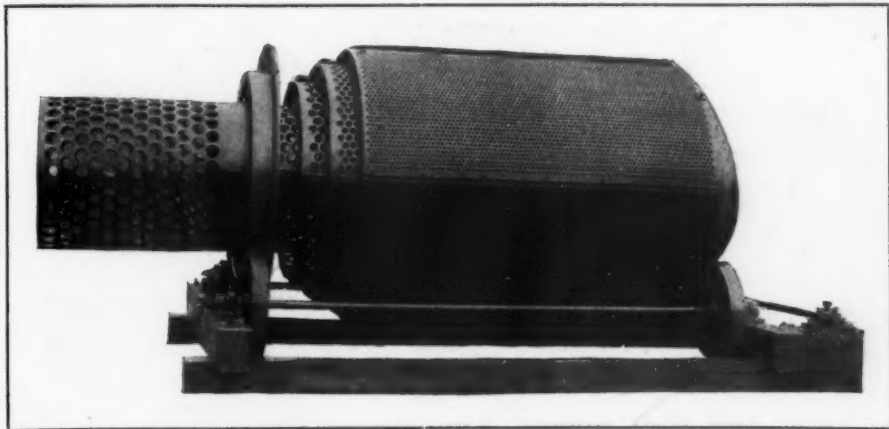
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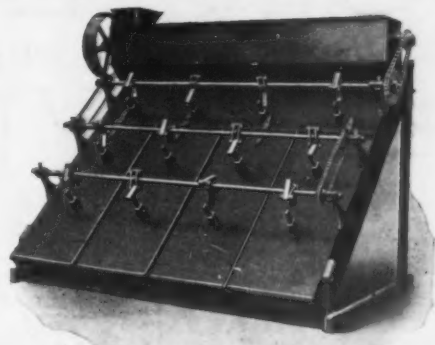
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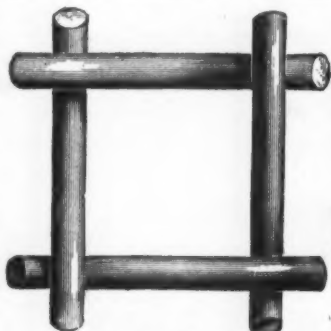
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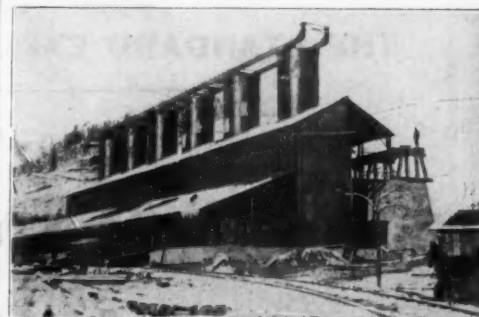
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Communications on subjects of interest to any branch of the stone industry are solicited and will be paid for if available.

Every reader is invited to make the office of Rock Products his headquarters while in Chicago. Editorial and advertising copy should reach this office at least five days preceding publication date.

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In the United States and Possessions and Mexico.....\$1.00
In the Dominion of Canada and all Countries in the Postal Union..... 1.50
Subscriptions are payable in advance, and in default of written orders to the contrary, are continued at our option.
Advertising rates furnished on application.

Entered as second-class matter July 2, 1907, at the Postoffice at Chicago, Illinois, under Act of March 3, 1879.

This is the day of opportunity for the cement user to do his best. Next season the far reaching influence of the greatest convention of the National Cement Users' Association ever held should create new conditions that have never yet been experienced.

As the time approaches for the annual meeting of the National Builders' Supply Association, the dealers of this country should be asking themselves this question: As a progressive business man in the builders' supply business, have I done my duty to the association by keeping up my membership and by promptly responding to the communications that come from the secretary's office? If this question cannot be answered in the affirmative, then it is your own fault if you have not been benefited by the association.

The association of the National Builders' Supply is one of far reaching influence and as has been suggested at many times in the past, it should be an association composed of representatives of state or sectional associations, which reach down to the every day operations of all the dealers in a given territory. There is no question but that the dealer is the most important factor in the sale of building material, municipal supplies, etc. They are so recognized by producers of material everywhere, and the organization and personal interest for the industries in the working of the organization is essential to the best measure of success in this busy period.

It is true that the meetings of the National Builders' Supply Association are all too brief to work out the practical possibilities as they should be worked out, but if the men who have the ability to do this thing for their sectional organizations would come to the next annual meeting, it is quite certain that the speakers would not be cut off with a five minute talk if they were handing out the real goods. The trouble with all the meetings in the past has been that there was a great deal of talking and very little doing when the time arrived. Why not make the next meeting of the association one in which things are done, and little else talked up? It is certain that this will meet with the approval of the officers, and it is the only way to benefit the organization and further the membership. Think it over.

The Cement Show that has just closed at Madison Square Garden, New York, was the usual grand success that has accompanied all the efforts of the Cement Products Exhibition Company of Chicago, who are the sponsors for the show, but it was not without its lessons and not without its disappointments in some cases.

New York is doubtless the greatest show town on this continent, but the Cement Show is not the kind of show that the people of New York are accustomed to seeing. The constant change of displays seen at Madison Square Garden for the last decade has not been up to the average of interest of the Cement Show and few of them have brought the element of newness that the Cement Show introduced. New Yorkers have gotten out of the habit of being particularly interested in the exhibits that are held at Madison Square Garden. But, besides the people who live in New York, there is a tremendous transient population which is always attracted to the garden and the shows that are held there. This is the class which attended the Cement Show to a great extent, and it is a more intelligent and higher class of people as a rule than has attended cement shows in the past. Architects, engineers, contractors and those interested in heavy building operations made up the throngs that visited the exhibits. No doubt, there was a more careful study of the exhibition as a whole or with regard to some particular angle of special attention than at any previous show.

The exhibitors, to a man, feel it has paid them well to have an exhibition at the New York show, although the number of actual orders was not as great as at several of the Chicago shows. This is explained, to a certain extent, by the early date. Several exhibitors stated that had the show been given in February or March they would have had their order books filled by the very people who visited their exhibits, but as it is, their books are filled with promises of those who intend to purchase later on. It is safe to say that had the show continued three days longer, the attendance would have increased materially with each succeeding day, for up to the close of the show, an ever increasing wave of people was in attendance, and this would indicate that the people of the East are not as quick to perceive the very thing which they want to examine the most, and safe to say that another Cement Show at Madison Square Garden would be patronized by at least double, and possibly triple of what the present show has recorded.

The success of the show was wonderful when one considers that it was the first thing of the kind that has ever been shown in Eastern territory. A great many people who live in the East imagine that they know all about cement, and they are astounded when they get inside of a real Cement Show to find that it is, in fact, a whole vista of entirely new ideas worked out in practice, which to them is all unknown.

The exhibits at New York were the most beautiful that have ever been prepared. They were arranged in the most attractive manner with uniform decorations of white and green and with cement pillars and surfaces for all the booths. It was a credit in every way to the management from the standpoint of taste and structural appearance. The best work of the leading architects of the country was exhibited in some of the displays, while the machinery exhibits were by far the best that have ever been presented in any Cement Show. It is certain that the eastern people are capable of promptly perceiving the educational features of the show, for they carried off the catalogues and subscribed for the technical journals to such an extent as to indicate that their mere attendance at the show had a purpose behind it, and that before long they will be heard from as users of cement, and it is probable that many of these will use cement on a very large scale.

EDITORIAL CHAT

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COMING CONVENTIONS.

January 10-13—Seventh Annual Convention and Show of the Iowa Association of Cement Users, Cedar Rapids, Iowa.

January 11-12—Ohio Stone Club, Toledo, Ohio.

January 11-12—Retail Lumber Dealers' Association of Indiana, Indianapolis, Ind.

January 19-20—Nebraska Lumber Dealers' Association, Rome Hotel, Omaha, Neb.

January 25-26—Retail Lumber Dealers' Association of the State of New York, Onondaga Hotel, Syracuse, N. Y.

January 25-27—Southwestern Lumbermen's Association, Kansas City, Mo.

February 1-3—Mid-West Cement Exposition, Omaha, Neb.

February 7—National Association of Lime Manufacturers, Pittsburgh, Pa.

February 14-16—Illinois Lumber Dealers' and Masons' Supply Association, Chicago, Ill.

February 14-17—Thirteenth Annual Meeting of the American Ceramic Society, Trenton, N. J.

February 17-23—Fourth Annual Cement Show, Coliseum, Chicago, Ill.

February 21-22—Twelfth Annual Convention of the National Builders' Supply Association, Chicago, Ill.

L. E. Fishack, president of the Fishack Gypsum Company, Toledo, Ohio, was a welcome visitor here a few days ago. ROCK PRODUCTS published an article regarding his company in the November issue and, unfortunately, a typographical error made the name to read "Fishback." Apologies are due, and are herewith extended.

Harry F. Rauch, the well known salesman of the Superior Portland Cement Co., Cincinnati, Ohio, is one of working cementers who has a long record and a wide and favorable acquaintance with the trade. He hails from Philadelphia originally, but has so many friends in Ohio and the middle west that he is more at home in Columbus or Cincinnati or Dayton than he is down east. Harry is always on the job when the cement specification comes up, and usually he is in the running.

TAKE IT AFTER MEALS.

It seems, from a recent letter, that A. Baumberger, of the Cape Girardeau Portland Cement Company, Cape Girardeau, Mo., can not do without ROCK PRODUCTS. Mr. Baumberger sent the following prescription for people who "go through life without anything on their minds except their hat:" "R—Take ROCK PRODUCTS, 12 doses, one each month. If at the end of first year the patient does not show marked improvement, it's because he is a 'dead one.' Ring for the dead-animal wagon."



HARRY F. RAUCH, CINCINNATI.

One of the active men in attendance at the Good Roads Convention at Indianapolis, Indiana, this month, was E. Clark Burgess of the Ingersoll-Rand Company. The big fellow is known wherever they build roads because his company with its main office in New York and branches at Chicago, Cleveland, and other points, has made a specialty of taking care of the wants of the crushed stone man and the road builders. Clark's size never interferes with him at conventions because no matter how large the crowd he can always be seen, and with his jolly good natured raillery, he keeps things moving in the machinery section and when he delivers his life form into the con-



E. CLARK BURGESS.

vention, the speaker generally stops, hesitates and wonders whether the data he has incorporated in his paper is absolutely correct, for Burgess is an expert road builder, according to his own talk, and has been traveling around with the bunch so long he is like a friend of the family. He remarked to a ROCK PRODUCTS man at the convention that it was one of the best he had ever attended and must be of

great educational value to the men on the firing line who sell the material and build the roads. The program having included practically every subject of value and the county commissioner or other public official who attended these sessions must have carried home many choice bits of information which will rebound to the interest of the tax payer.

The Ingersoll-Rand Company make drills of all kinds, crushers, which are of special value to the contractor and operator in road building material lines, air compressors of all sizes and for all purposes, bits, tripods, bars, and in fact everything of interest and value to the trade.

GET TO WORK.

(By L. H. McCammon.)

Once again the world is moving as it moved in other days;
Quit at last the yellow journals from the error of their ways.
There are signs of peace and plenty in the faces that we meet
In the country's quiet roadways and the city's busy street!
And the wily politician, with his sins all unconfessed—
We have got him in cold storage! Let him rest now—let him rest!

Life again is worth the living! Friends again may meet and stand
With no rotten ice beneath them, face to face and hand to hand!
Glory be! Election's over! We can get to work again!!
And, for getting party feeling, live and act like honest men!
And the shy, elusive dollar dodges not the reaching hand,
For again the great good Business rides triumphant through the land!

Just let politics get started and the business world stands still!
All the dimes go, and the dollars, politicians' hands to fill!
We are willing—more than willing—we are very glad to work
For the welfare of the country, not a business man will shrink!
But we're glad election's over! And we're mighty glad to say
That Prosperity and Fortune smile upon us all today!

Shop Notes Quarterly, the big, new technical review, recognizing the pre-eminence of concrete as well as electricity as chief factors in modern progress, devotes a large portion of its first issue for 1911 to these subjects. The cover design, called "The American Sphinx in a Smokeless Age," presents Lorado Taft's great concrete statue amid ideal surroundings. F. J. Schulte, formerly of the ROCK PRODUCTS editorial staff, is the managing editor of this progressive publication.

C. E. Warner, who was prominent among the visitors to the Good Roads Convention at Indianapolis, is the county surveyor at Benton, Mo., which position he has held for over eight years. He is smooth shaven, comely and youthful in appearance. Here is the story: "The other day in Benton I was pointed out to a fellow that I was the man to survey his land. He stopped, sizing me up carefully, and then drawled, 'You are pretty d—d young to be a surveyor. Can you tell me the northwest corner of my land, section 15-27-15.' I told him I couldn't as I had never been there. He walked away a trifle unsteadily, saying, 'Thought not; you are too young for a surveyor,' and I never did get a chance to locate that fellow's corner of ground."

The plans prepared by the city of Pittsburgh for the proposed new concrete \$1,000,000 bridge across the Allegheny river at the Point have at last been approved by the United States Government engineers, and it is expected that bids will be asked for within a very short time.

Fritz Worm, of the German-American Portland Cement Works, makes his home at LaSalle, Ill., right close to the "Owl" mill, although he is in the Chicago office every few days. He is "up to snuff" in cement, and one of the young men of the industry making his mark.

C. C. Kritzer, of Chicago, the great hydrating expert, says the lime industry is rapidly adjusting itself to the new basis of universal hydration. Localization of sales is rapidly disappearing since it is possible to ship hydrate long distances. Markets that never experienced such a thing as a selection of lime for any given purpose are waking up to their opportunities.

W. H. Eccles, for six years with the Marquette Portland Cement Manufacturing Company, has joined Paulson's band of Indians in Indianapolis, and from now on will be found wearing the "Lehigh" smile.

There Should Be No Pessimism

Prominent Members of the Trade Approve of Stand Taken by Rock Products.

When, after the November elections, Rock PRODUCTS sounded the slogan, "Let's get busy—the election is over!" it met with an immediate hearty response throughout the country among manufacturers and dealers. These business men—men of affairs, conservative, observant and energetic—took note closely what the results of these elections meant; that the politicians, who had ridden roughshod over the will of the people, had unceremoniously been "put on ice;" that the people had risen in their strength and sent men from both parties to the national legislature to serve the best interests of the whole country. While some of the merchants held their breath for a few days after the election, expecting something to drop, they found instead a renewal of confidence in business conditions, bringing them a revival of activity and new orders. The magnificent crop this country has harvested this year, and the general prosperity enjoyed in all sections of it, has successfully offset the baleful influence of politicians and the uncertainties elections at times create in business circles. Also the reassuring message President Taft sent to Congress in which he urges merchant marine subsidy; sounds economy as a watchword for all departments; tells Democrats to go slow in revising the tariff law and points to the sound commercial condition of the country. Business men throughout the United States therefore feel the thing to do is to let the elections of last November take care of themselves and for them to take care of their business and go at it "hammer and tongs," which they are doing. The slogan sounded by Rock PRODUCTS last month has been taken up enthusiastically by all and Rock PRODUCTS is heartily and highly commended, as seen from the excerpts of the following letters which were received at its office:

The Prospects Are Fine.

Charles Warner, first vice president Charles Warner Company, Wilmington, Del., sends this encouraging statement:

Your favor received in re "election is over, etc." is very pertinent. The election period is entirely too distracting and upsetting in its effect on our commercial welfare, though we will doubtless have to class it as a "necessary evil."

It may be like some of the departments of practically every industrial corporation—not profitable, but which we can't afford to let go. This seems inconsistent, yet I believe it is absolutely the truth in our business life of today.

But, election is over, and we have a great, big, healthy country, with tremendous resources and tremendous demands, and growing every year.

What is a little ache or pain to the possibilities for a long pull—a mere nothing.

We are mostly in business for a long pull, and, therefore, the temporary aches and pains, accompanying election period should be quickly brushed aside.

We agree absolutely with you—"Let's get busy." The prospects are fine.

Effect of Politicians Losing Force.

J. C. Adams, secretary and treasurer of the D. J. Kennedy Company, Pittsburgh, Pa., gives the following as his opinion of the situation:

We have your favor of the 17th of November indicating that you are getting up an article to prove that politicians are on the ice.

There seems to be no question but what politicians are on rather thin ice all over the country, but what we need is united effort among the business men to break the ice and drown the rats.

I am of the opinion that the effect of the politicians is rather losing force and that conditions are gradually getting back to their accustomed place. At least, starting with the midsummer, our business would indicate very healthy growth; in fact, notwithstanding low prices, for the past three months the volume of business has shown decided improvement over any similar period in three years.

Coming Year a Record-Breaker.

James M. Reilly, secretary of the Mason Material Dealers' Association of Newark, N. J., writes as to outlook in trade for the coming year as follows:

Nothing but uncertainty can prevent the coming year being a record breaker, in all lines of industry and trade. The condition of farm crops for the past year are above the normal, meaning that the farmers in all sections are prosperous.

The situation in this state along manufacturing lines, while not what could be, is nevertheless considered favorable by manufacturers, the majority of whom anticipate a prosperous year, the disturbing element being the tariff and the probable attitude of the next Congress.

There is no reason why politics should further interfere and it rests with the business men to get busy and go ahead with their plans. In this state there is every reason to expect a larger amount of building to provide for the constant increase in population and for the constant expansion which is taking place among the manufacturing plants located here.

Let Business Men Avoid Politics.

William H. Pipkorn, president of W. H. Pipkorn Company, Milwaukee, Wis., is forcible in his suggestions for business men to avoid politics. He says:

In reply to your letter under date of November 17, which has been delayed for answer on account of the writer's absence from the city, wish to state that if it is not too late at this time to say a few words in addition to all the letters which you have already received, which I have noticed in your November issue, I might add for your next issue, that our experience in the last seventeen years has been that the further it is possible for business men in this or any other line, to keep away from politics, the better off they will be for it. I have always made it my special effort in my last seventeen years of business experience to avoid politics just as much as possible, and simply did my duty at the polls at each and every election.

Our business has always been thriving, although we have had our little slack times the same as it is customary in other lines of business, regardless of what they may be. The fact of the matter is that the year 1910 has been our "banner" year. As to the future outlook, I have had occasion to look into the situation very carefully, and some of the leading architects of this city have already considerable work ahead for next year and are more than pleased with the outlook for the year 1911.

My candid opinion of the year just about to close, and of the situation in general for the near future, is that we are living through a business career which is simply normal. It has not been a case the last twelve months, nor do we expect it will be for the next two years to come, of one big rush of over-prosperity, but to the best of our diagnosis of the situation, as stated before, a normal and conservative state of affairs.

This Season Best Ever.

Bert L. Swett, of the Lehigh Portland Cement Company, Indianapolis, Ind., writes the following optimistic letter concerning the past season:

Your letter of the 17th of November to hand and contents noted. I wish to say in reply that we are all aware that this past season has been the best ever. Not only has there been a large amount of big work that has consumed cement, but the dealers in general throughout the middle west have had a much better business than they have had in the past, and there have been only a few cement companies that have been able to keep up with the demand throughout the season.

Not only have the dealers done a large volume of business, but the retail prices have been better, but this always seems to be the case when the wholesale prices are as good as they have been this year.

I am not what you would call a pessimist on next year's business whatsoever, but I feel that we cannot depend on the same class of work in 1911 that we had in 1910 on account of local conditions and feel that more strenuous efforts must be made with the general trade and the little work which the general trade supplies, certainly will have to be boosted.

Business Very Good in 1910

March G. Bennett, general manager of Samuel Cabot (Inc.), Manufacturing Chemists, Boston, Mass., writes the following terse and strong letter:

Your esteemed favor of November 17 is at hand, and in reply would say that we do not think that the election has had any influence on our kind of business. The only business men who are likely to be disturbed nowdays by elections are those who are conducting the kinds of business that the law may reasonably inquire into. We hope that the building industry will succeed in keeping out of this class.

Business has been very good in 1910 and the prospects seem to be excellent for the coming year.

Binghamton Alive and Awake.

J. W. Ballard, of the J. W. Ballard Company, Binghamton, N. Y., has this to say:

Your favor of the 17th received, desiring an expression from us as to the season's trade in building materials, and a little boost on the plan you have specified under this heading, "Election is over," "Politicians are on ice." I do not know what plan you refer to, as our copy of Rock PRODUCTS for this month has not come yet; but as for business here locally, we have had a larger year than the previous year. Binghamton is alive and awake, anyway, as proved by the recent increase in the last ten months being about twenty-two percent.

Distinct Revival in New Orders.

The Bradford Pressed Brick Company, of Bradford, Pa., says:

We are in receipt of Mr. DeFeaugh's letter of November 17, and beg to advise that we have had a very satisfactory season, although shipments will be considerably less during the last four months of the year than they were during the early spring and summer. We are running both of our plants steadily and are manufacturing about 85,000 brick daily. We have made arrangements and expect to have a plentiful supply of gas during the coming winter and expect to run steadily during that time. There has been a distinct revival in new orders since the election, and we are looking forward to a big year in 1911.

Business Situation Considered Favorable.

Walter C. Schultz, of Charles S. Schultz & Son, dealers in masons' building materials, Hoboken, N. J., writes as follows:

In spite of the volatile situation of the past few months, the year's business should average up well in New Jersey.

With election over, Governor Wilson to manage our state affairs and the politicians "on ice," this is the time to get busy.

The business relations in our state between manufacturers and dealers of masons' material have never been more pleasant. Methods of doing business are improving and the dealer who cannot show a reasonable

net profit on this year's business must blame himself for not opening the door to the splendid opportunities that were knocking.

Commends Rock Products' Plan.

J. A. Pfeiffer, in sizing up the present business situation, believes in "playing winning ball." He writes from Kansas City:

Referring to yours of November 16, I rather think you are to be commended for the plan you have specified under the heading, "Election is over," "Politicians are on ice."

I believe every man in the selling game will endorse it, for these temporary setbacks or general depression in business attributed to national elections, while keenly felt by manufacturers and dealers, come to every salesman in the way of "sour grapes." During these political upheavals a salesman often working hard for weeks or months to develop a nice proposition for his material on some large building project has only to find the work held up because the party or parties financing same are awaiting the result of election. I believe, however, that with the appearance of 1911 we will witness starting of many new projects as well as the completion of those that were shelved temporarily. It behooves every one of us to "play winning ball," and increase our batting average. We have two years to hustle in, and grab everything in sight, knowing we are not to be molested by any election within that time. As you say, let's get busy.

Does Not Expect Millennium.

William S. Hotchkiss, president of the Hotchkiss Contracting Company, Chicago, Ill., has this to say:

Replying to yours of November 17, we desire to state that business is good, and that we firmly believe that the contractor who makes a practice of doing good work, should have no fear of having to lay idle. Prices are good, both as to materials and for completed work. He who harps upon hard times and unsatisfactory work is a rank pessimist.

There can never be a millennium in the contracting business, but if contractors would endeavor to impress architects and owners with the advantages of the percentage system of doing work, we would have the nearest approach to an uniformly satisfactory basis for all parties concerned as is possible to get. Under the percentage system, the contractor has no incentive to do other than a first-class job and to complete the same as quickly as possible. The owner knows that he is getting the worth of his money, and his building built as economically as possible. The architect need have no fear that his plans and specifications will not be lived up to and no cause for worry about the failure of any part of the work. Let us all be optimists on the business situation and boost for the percentage system.

Reports from Dealers Fine.

L. E. Fishack, of the Fishack Gypsum Company, Toledo, O., reports the following conditions:

Replying to yours of the 17th, will say that taking into consideration the season of the year, business is very good with us and taking the business of this year as a whole, we are pleased to say that it has been the largest in the history of our company and shows a very gratifying increase over 1909.

Reports that we have received and are receiving from our dealers throughout our territory, indicate that unless conditions arise that would change the outlook at this time, business in the building line should be good next year and we are preparing to take care of the increased volume of business that we hope to secure next year, by erecting a new, modern fire proof gypsum mill near Gypsum, Ohio.

Holds His Breath a Few Days.

J. N. Black, manager of the Fairmont Wall Plaster Company, Fairmont, W. Va., has this to say about the conditions in business:

We have your esteemed favor of the 17th, and in reply are pleased to inform you that we have had a very satisfactory trade this year. We did hold our breath for a few days after the election, being somewhat surprised with the capers the people cut with the politicians, and not knowing just where they would land, and in turn land us, but on receipt of your letter informing us that they, "the politicians," "had landed on the ice," we at once got busy again and are pounding away at the old stand, firmly believing that the fellow that wins is the fellow on the job.

We are pleased to note the success of Rock PRODUCTS along that line, and we hope to profit by your wise counsel and example.

Fears Promises of Politicians.

E. L. Merriman, treasurer and general manager of the Paragon Plaster & Supply Company, Scranton, Pa., writes as follows:

Your favor of November 17 addressed to the writer, was duly received and has been unanswered owing to my absence from the city.

I note you desire an expression as to the season's trade in building material, as well as comments on "election is over" and "politicians on ice," etc. If the politicians could be kept on ice for the next two years, the business situation would take care of itself, but I fear the promises made by the politicians to make good on the tariff question will cause the money interests to pause until this very important question is settled. If the tariff question could be entirely eliminated from politics, we believe the business would have no cause for complaint. In my judgment, the business indications for the next season are only fair, but we are hoping for the best.

W. M. Burchfield, sales manager Rochester Composite Brick Company, Rochester, N. Y., writes:

We have yours of the 17th inst., addressed to R. W. Holden. In reply I would say that at the present time the bricklayers of Rochester are on strike and as a result the building supply business is "on ice." Despite the fact that a strike of the laborers tied up business for six weeks during what should have been the busiest part of the year and a strike of the bricklayers has duplicated the performance for the past three weeks, Rochester has had a fair year in the business line and we are confident that, as soon as the present strike is settled, business will become brisk—for this time of the year. We have just completed the overhauling of our brick plant and the installation of a duplex wet pan. There is an ever growing demand for our brick and cement products and we are anticipating a busy season in 1911.

FOR IMPROVEMENT OF THE WATERWAYS.

The work of Rivers and Harbors Commission, the Lakes to the Gulf Deep Waterway Association, and all other organizations working for the improvement of the internal waterways of the United States are direct factors of progress that need the support of the business interests which are affected thereby. The appropriation for improvements of waterways has a meaning for the cement users that is nation-wide, and is more important than any other legislation of the coming Congress. One can readily understand that the improvement of internal waterways means a practical emancipation of the industrial and agricultural interests of the country from the organized domination of railroads in the matter of transportation. It should not be undertaken upon any haphazard basis, nor by any plan which does not provide for the accessibility of the waterways to public use. Where locks are provided, they should be built of such size and draft as to provide for vessels of large tonnage. It is by no means necessary to have a lock that will carry the largest ship ever built or the largest ship that some engineer can imagine, but locks that will pass through boats of 5,000 to 6,000 tons net cargo would make a practical and profitable basis on which to operate the navigation of internal streams and canals. While improvements are in progress, unobstructed public landings provided with loading and unloading devices for the cheap handling of all types and classes of freight should be considered as a part of the canal or improved waterway equipment.

We have in the Empire state of New York a shining example of the benefit of the maintenance of the internal waterways. New York state has always owned her own canals. She has always maintained them. The commercial importance of the furthestmost canal port in the state of New York has never known a decline and their industries have always flourished. This is principally creditable to the presence of the canals. On the other hand, those states that have allowed their canals to fall into disuse and actually go out of commission, have met with just the reverse conditions, which are doubtless chargeable to the neglect of their canal systems.

Now, all of the cement users, the manufacturers and dealers in builders' materials, the makers of machinery and equipment, all can understand the importance of the internal waterways and see to it that a commission of men of the right stripe are put to work on the waterways, so that a beginning can be made in due time, and thus avert a calamity when it is found that the railroads are incapable of handling the tonnage of the great commerce of this country. It has been stated by one who knows that it is impossible to double the railroad tonnage of the country with the present type of motive power and rolling stock, and it is just as certain as the days are to number themselves one after the other, that in another decade the tonnage of American commerce will be double what it is at the present day.

INSURANCE AND CONCRETE.

The maintenance of fire apparatus and the extensive fire departments of cities, together with the insurance levied upon realty improvements, is by far the greatest tax that people have to pay at the present time. One of the most important reports at the recent convention held in New York was that of the Insurance Committee, in which it was shown that concrete construction is the only type of building known that is practically safe from the fire risk and fire danger to human life. It is significant that the so-called slow-burning type of factory construction is almost invariably the kind of building in which great loss of human life and great damage to industry befalls in case of fire.

Of all the concrete factory buildings, office buildings, warehouses and even residences where concrete has been used exclusively as the structural material, there is not a single destructive fire on record and no life has been lost thereby.

Each and every reader of ROCK PRODUCTS, every practical cement user and every structural engineer and architect should recommend concrete construction exclusively, because he cannot conscientiously recommend any other type of building or any other material that has a record for safety that is comparable to concrete when properly used.

W. W. Stephens, president of the Stephens-Adamson Mfg. Company, of Aurora, Ill., has returned from Europe. He has been spending some time in the study of the shops and methods of the larger manufacturing establishments of England, France and Germany.

WATERWAY IMPROVEMENT.

National Rivers and Harbors [Congress in Session at Washington, Passed Important Resolutions.]

The seventh annual session of the National Rivers and Harbors Congress was held at the New Willard Hotel, Washington, D. C., December 7-9. The estimated attendance was 3,500, including men and women from all over the country who are interested in the Congress and its work. The opening address was given by President Taft, who was accorded a hearty welcome by all persons present.

During the three days' meeting the work of the National Rivers and Harbors Congress was explained, the things that had already been accomplished were commented upon and plans for more practical work in the future were made. It was brought out that the general public is becoming interested more deeply each day as the need of waterway improvements is brought to light. Several ladies graced the program on Thursday evening, the second day of the session, among them being Mrs. Hoyle Tomkies, president of the Women's Rivers and Harbors Congress, and Mrs. William Cumming Story, Daughters of the American Revolution.

On Friday morning, the last session of the meeting, Capt. J. F. Ellison, secretary-treasurer of the congress, presented a brief report. The report stated that 36 states and 164 cities were represented by delegates at the convention. The total receipts for the year were \$24,742; expenditures, \$28,572.84; a deficit of \$3,316.65. The expenditures for publicity were \$28,572.00.

Report on Resolutions.

The report on resolutions was then read by Hon. John C. Freeman, of Richmond, Va., chairman of the committee on resolutions. The report follows:

"The National Rivers and Harbors Congress at its seventh annual convention, composed of delegates from every state in the Union and representing every form of commercial activity, hereby declares as follows:

"(a) We favor the adoption by the government of a broad, liberal and comprehensive policy of waterway improvement to the end that our rivers, harbors and connected waterways may take their place to the fullest extent in carrying the commerce of the nation, thereby greatly increasing the transportation facilities so essential to the full development of our country.

"(b) We congratulate the people of the United States upon the friendly attitude of the President toward all worthy projects, and upon the enlightened and broad-minded action of the sixty-first Congress in recognizing the necessity of annual appropriations for the prosecution of authorized waterway improvements.

"(c) We reiterate as a cardinal principle of waterway improvement that no project should be adopted by Congress which has not received the approval of the government engineers, but that every principle of economy demands that the period of construction of adopted projects should be made as short as possible. All projects approved by the government engineers and adopted by Congress should, therefore, be put upon the continuing contract system and moneys provided for their completion as rapidly as physical conditions permit; such moneys to be paid from current revenues when practicable or from the issuing of bonds when necessary (the issue of bonds for any year not to exceed an amount sufficient to meet the demands of the appropriation for that year) for improvements which by their nature are of a permanent character.

"(d) We favor the passage of an annual rivers and harbors bill carrying at least fifty millions of dollars.

"(e) In view of the magnitude of the necessary work, and the far-reaching influence of its results, affecting as they will all transportation throughout the land, we respectfully but most earnestly petition Congress to increase materially the corps of engineers.

"(f) The value of waterways being largely dependent upon the character of their terminal facilities, we earnestly urge the vital necessity of effective cooperation by states or localities with the government in waterways improvements, or by private interests under proper public regulation, in the provision of suitable terminal facilities for the use of all traffic on equal and equitable terms.

"(g) We recommend the enlargement of the powers of the Interstate Commerce Commission to the end that that commission may more effectually regulate the competing land and water carriers."

After the reading of the resolutions the congress adjourned.

NEW YORK MEETING N. A. C. U.

The seventh annual convention of the National Association of Cement Users recently held in New York in connection with the Cement show, was the most important and influential meeting that body has ever held. It has always been a hard-working convention, made up of session after session of technical papers, with discussions appending to the same that require the closest attention of the members. So much has this been the case that little opportunity has been given to the members to become well acquainted one with the other. In fact, most acquaintanceships were formed in the tilts of argument on the floor of the convention. At the meeting held in New York a distinct departure was made by giving a banquet, where good fellowship flowed out and where friendships were cemented that will last forever.

In all points, the convention just held at New York makes a distinct change in the position and attitude of the national association. From this time forward, it must be recognized as the leading technical society of America devoted to progress in the use of concrete. The membership of the society today is more than 1,000, and these comprise the leading engineers, architects and practical contractors, whose connection with the association gives them international recognition and reputation. He who holds membership in the National Association may proudly point to his connection therewith as one of the progressive in the specialty in which he conducts his business operations. The goodwill with which all the committeemen have given of their services and of their ability, is evidence of the enthusiasm which will prevail throughout the campaign of the association, so well organized and planned before the Board of Directors finally adjourned at the New York meeting. It is hoped that the members will promptly respond and do their part in the campaign work of the association, so that at the time of the next convention the banner of progress further advanced can be distinctly noted.

NOTE THE DIFFERENCE.

Hydrated lime, the great modern improvement of the most ancient industry in the rock product line, is decried at the present day by those alone who know little or nothing about the high-grade product that is made in an up-to-date hydrating mill. It is a fact that properly hydrated lime is practically isolated, for a considerable period, from deterioration by exposure to air. The extreme fine division of the particles (nearly all 200 mesh) practically satisfied as far as water is concerned, stops the action of the atmospheric gases. Such a hydrate is found on examination, when 60 or 90 days old, to be practically free from carbonic acid and easily convertible into perfect putty by the mere addition of more water. Of course, a merely watered lime is not the material we are talking about; in the dictionary definition of Noah Webster, who has been dead nearly fifty years, putting water to lime, exposed to the atmosphere or otherwise, and without measure or condition being considered at all, makes hydrate of lime. The successful commercial hydrates are very carefully prepared as to fine division and the condition of the material secured as the finished product. The difference is appreciated by those who know best, and are they not the users?

Fred S. Langner, of the Langner Manufacturing Company, Cleveland, Ohio, paid a brief visit to ROCK PRODUCTS recently. He said prospects for the new year looked bright to him.

W. W. Fischer, of the Fischer Lime & Cement Company, Memphis, Tenn., was a visitor here this week. He reports business good in Memphis and expects to be in Chicago in February.

A number of changes were recently made in the management of the Bennett branch of the American Sewer Pipe Company at Jackson, Mich. The resignation of A. A. Bennett, superintendent, was tendered and accepted, and John Schott was promoted from the position of foreman to succeed Mr. Bennett as superintendent. F. J. Van Allen, who has occupied the position of sales manager for the Michigan Sewer Pipe Company, has been made manager of the American Sewer Pipe Company at Jackson. In addition to his new duties as manager Mr. Van Allen will continue as sales manager for the Michigan Sewer Pipe Company, this company being the selling agency and the American Sewer Pipe Company the manufacturers. Mr. Van Allen has been a valuable and trustworthy employee and his promotion was the result of faithful and consistent service.

FAVORS FOURTEEN-FOOT CHANNEL.

Things buzzed at the fifth annual convention of the Lakes-to-the-Gulf Deep Waterway Association, held at the First Regiment Armory, in St. Louis, November 25 and 26. The convention declared for a 14-foot channel from the Great Lakes to the Gulf of Mexico, with provision introduced for increasing the depth of the channel to 24 feet when occasion requires; reelected all of the officeholders of the past year to their old offices for the ensuing year, and by an overwhelming majority selected Chicago as the meeting place for the next convention.

Although not as large as expected, because of the preceding holiday, the attendance made up in spirit, the force it lacked in members. There were several thousand guests housed in St. Louis during the convention, however, in the face of the inopportune date selected. Local lumbermen were prominent among the persons present and the Lumbermen's Exchange was represented on the reception committee by George Hibbard, Loyd G. Harris, William Boeckeler, George Cottrill and Julius Scheve. Vice-President Conway, of Chicago, opened the convention with a brief talk, and then turned the chair over to President Cavanaugh, who stated the purpose of the convention. Following the routine work of the meeting at the opening, President Cavanaugh delivered an address, telling how the sentiment had been growing, favoring a deep waterway, since the inauguration of the movement four years ago. He cited briefly the benefits that would occur by the completion of the proposed waterway.

Resolutions As Adopted.

The resolutions as adopted by the convention follow in substance:

Unqualifiedly accepting the letter and spirit of the constitution of the United States, we hold our government is of the people, by the people, and for the people, and that special or local interests or policies in conflict with the inherent rights and sovereign will of the people will not be tolerated.

We utterly repudiate and condemn as undemocratic, unrepresentative and essentially unreasonable the false doctrine that our people are incompetent to govern themselves.

We hold it our sacred duty to direct and compel our representatives constituting the federal government to act effectively and without needless delay, not merely in the improvement of our rivers but in the actual development of such navigation as the public welfare demands.

We declare a fixed and unalterable determination to bring about a proper adjustment between transportation and that production of the necessities of life attending the natural growth and orderly development of our people.

We demand that the plans for a waterway connecting the great lakes with the gulf as the main artery of our navigation system provide for an initial depth of not less than fourteen feet, with lock sills and other permanent structures adapted to a depth of not less than twenty-four feet, and we hold that the advocacy of any less depth by federal engineers has arisen in a desire to circumvent our efforts and defeat our main purpose of improving transportation by an adequate system of commercial navigation.

We voice the will of the people as represented in this assemblage and refuse longer to abide by dog-in-the-manger policies or accept the rainbows of false promise and evasion by which our people have been put off in the past while commerce was actually disappearing from our rivers. We demand action.

Realizing the futility of the indifferent and repressive methods that have permitted, if indeed they have not caused, the decline of navigation on our rivers, we demand a sound constructive administration of plans and works for waterway development, such as might be secured by extending the scope of the Mississippi river commission or by creating one or more additional commissions on a similar basis, and we demand a clear separation of the administration of the waterways from the duties properly devolving on the legislative branch of the government.

We deny and condemn the fallacious theory that the need for waterway development can be measured either by the amount or by the absence of water borne commerce before the channels and terminals are properly developed.

Accepting the natural fact that the perpetuity of navigation depends upon the maintenance of the sources of navigable waters, we hold that each stream is essentially a unit from its source to its mouth and that the various uses of the waters are interdependent.

We urge that the question of divided or doubtful jurisdiction over waters and waterways be solved through practical co-operation or by arbitration in the light of current experience rather than by recourse to archaic precedents not adapted to modern conditions in this country.

We affirm our conviction that it is the duty and is within the constitutional powers of the federal government to exercise jurisdiction over terminals and over all connection with other transportation agencies required for the development and maintenance of water transportation.

Since the Panama canal is nearing completion, we demand that the Mississippi valley be placed on a parity with the seaboard by corresponding development of the Mississippi river and its tributaries as parts of a comprehensive system of commercial navigation.

We demand the development of our waterways as an investment rather than a succession of piecemeal operations, serving only to distract attention from the primary issue of navigation itself.

AMENDMENTS TO CHICAGO'S BUILDING CODE.

At a meeting of the City Council of Chicago last Monday the following amendments to Chicago's building ordinance were passed:

Height of buildings—Cannot exceed 200 feet after July 1, 1911. Present limit 260 feet.

Building Commissioner and Deputy Commissioner—May be "building mechanic" instead of "architect, civil, structural, or architectural engineer."

Billboards—Prohibited on roofs and when on street level must be 3 feet 6 inches above ground.

Light and air—Three-story buildings on 25-foot lots must have courts containing 60 square feet.

Slag—May be used in concrete if the mixture has a specified ultimate comprehensive strength.

Concrete—Mechanical mixing required except when commissioner of buildings approves of hand mixing.

Subway—Foundations of future buildings must be sustained within lot lines so they will not interfere with subway construction.

Experts—Offices of engineer in charge, assistant engineer in charge, and four architectural engineers created in building department.

The most important amendment, that of restricting the height of buildings to 200 feet, was hotly debated. Arguments were presented for and against, those in favor of the restriction contending that the 200-foot limit would tend to abolish the "Loop" in Chicago, and the ones against the restriction brought out the fact that building of 200 feet or under are not a good investment and would tend to inferior construction. The amendment was finally passed to read: "After July 1, 1911, the 200-foot limit would be in force." Another amendment was passed in which the building department will report further on February 25. It is thought by that time business men and associations of Chicago interested in the matter will have offered arguments enough to keep the building height to its present limit of 260 feet.

The ultimate passage of a 200-foot limit would mean that more than half a dozen proposed skyscrapers would never be erected, since the plans show they are to be over 200 feet high.

The amendment stating that concrete must hereafter be mixed by machinery went through without a dissenting vote. The great danger that is liable to result from having buildings constructed of concrete that has been mixed in an indifferent manner by the workmen is apparent to all users of concrete. This restriction on the mixing of the concrete and the clause which allows slag to be used only when it reaches the specified strength will do away with the frequent scares of "stuffed" concrete buildings.

Commissioner Mullaney of the Public Works Department wrote the Council urging the necessity of a complete survey of all the streets and alleys in Chicago, and the establishment of monuments showing both correct lines and grades. This will be done to facilitate the construction of the proposed subway.

We were very pleasantly favored last month by a call from W. Alden Brown, who was on his way to New York, whence he expected to sail December 3rd on the White Star liner "Celtic" for his old home. For the past two years Mr. Brown has occupied the position of assistant superintendent to C. U. Lea at the Cowell Portland Cement Company's plant, Cowell, Cal. Mr. Brown has a very interesting history, having been connected with the War Department of this country for quite a number of years, and now draws a pension. He received honorable mention for his services from Lord Roberts and General Kitchener during the Boer war. Mr. Brown during his residence in California made many friends, who regretted exceedingly his departure, and on the occasion of his leaving a banquet was tendered him by the prominent citizens of Cowell, at which he was presented with a beautiful gold watch and chain and Masonic charm. On the inside of the watch was engraved the following words: "Presented to W. A. Brown, November 11, 1910, by the officers and staff of the Cowell Portland Cement Company, Cowell, Cal." Mr. Brown will take charge of the plant of the Associated Portland Cement Company at Burham, Kent. This is a very modern plant, as they have several 200-foot kilns, which are the largest in England, except those at Northampton.

Charles F. Harwood, sales manager of the Superior Portland Cement Company, of Cincinnati, Ohio, was a visitor to Chicago recently. During his visit he favored ROCK PRODUCTS with a call and reported prospects for the new year very good—"Especially good," he said, "for the Superior Brand."

BUILDING SHOWS SLIGHT INCREASE.

Building continues active, the figures for the month of November showing a moderate increase over those of the corresponding period a year ago. According to official reports from fifty-six cities, permits were taken out for the construction of 14,453 buildings, involving a total estimated cost of \$56,670,355, as against 15,002 buildings, aggregating \$56,476,789 in cost for the same month a year ago, a loss of 549 buildings and a gain of \$193,566, or less than one-half of 1 per cent. There were gains in twenty-six cities and a loss in thirty cities. The figures in detail are as follows:

Cities—	—1910—		—1909—	
	No. of bldgs.	Estimated cost.	No. of bldgs.	Estimated cost.
New York	689	\$14,287,631	579	\$12,575,810
Chicago	920	8,282,700	891	6,825,700
Boston	366	5,654,000	396	4,852,000
Los Angeles	949	2,228,663	893	1,336,830
Philadelphia	985	2,221,635	1,399	3,254,660
Brooklyn	405	2,166,870	701	4,402,800
Detroit	535	1,474,885	489	1,551,455
Kansas City, Mo.	315	1,463,465	297	989,076
St. Louis	558	1,306,623	656	1,458,610
Cleveland	514	1,151,022	479	889,180
Portland, Ore.	422	1,119,000	359	835,430
Seattle	921	1,020,380	1,149	1,254,630
Pittsburg	267	1,011,890	292	762,229
Milwaukee	313	853,767	242	1,196,662
Buffalo	272	847,000	224	1,183,000
Washington, D. C.	415	818,615	577	849,130
San Diego	202	811,580	168	192,600
Minneapolis	364	785,005	425	1,056,385
St. Paul	262	704,108	307	1,568,535
Newark, N. J.	211	696,525	235	842,759
Atlanta	392	534,613	353	340,550
Rochester	254	499,099	299	724,900
New Haven	84	489,670	92	409,851
Cincinnati	822	489,380	758	376,855
Indianapolis	366	480,792	252	345,185
Memphis	244	475,315	222	390,600
Baltimore	207	420,930	223	376,603
Omaha	100	401,960	96	933,035
Toledo	113	382,200	85	139,983
Oakland, Cal.	305	351,557	308	436,295
Columbus	215	306,500	115	186,345
Jacksonville	94	295,050	80	173,600
Worcester	163	258,195	100	475,868
Birmingham	225	211,209	97	137,432
Lawrence	32	198,475	37	189,750
Richmond	97	191,793	82	403,721
Duluth	85	183,430	72	212,695
Louisville	149	172,772	152	193,392
Wilkesbarre	59	164,145	58	165,681
Paterson	71	159,505	72	220,105
Scranton	59	142,251	73	219,935
Peoria	26	134,375	28	72,734
Grand Rapids	86	126,635	102	207,651
Norfolk, Va.	34	102,354	61	522,126
Portland, Me.	30	74,600	21	66,250
Little Rock	60	66,654	87	77,680
Springfield, Ill.	41	54,645	42	87,577
Charlotte, N. C.	30	51,945	39	92,582
Troy, N. Y.	25	51,025	30	58,400
St. Joseph	52	48,059	42	69,865
Des Moines	27	45,390	32	116,500
Elgin	11	31,485	22	27,060
Mobile	14	30,414	20	16,700
Davenport	13	29,204	13	26,830
South Bend	22	27,880	12	25,910
Lincoln, Neb.	21	21,425	47	110,000
Totals	14,453	\$56,670,355	15,002	\$56,476,789

The principal cities, including New York, Chicago, Boston, the Ohio and those of the Pacific coast show heavy gains, while in a group of cities in which there has heretofore been tremendous activity there are acute losses, but it is believed that they are only temporary. The situation in New York City requires explanation. In Manhattan, or the heart of the metropolis, which has been overbuilt, there is a loss of 59 per cent, while in the Borough of the Bronx there was a phenomenal gain of 182 per cent. Otherwise the significant features of the table include a gain in Pittsburg of 33 per cent. In Philadelphia, Brooklyn, Detroit, Milwaukee, Buffalo, St. Paul, Minneapolis and Omaha there were moderate decreases, although in Kansas City there was a good gain.—Construction News.

Charles Merrill, of Morrison, Merrill & Co., Salt Lake City, Utah, was a welcome visitor to the offices of ROCK PRODUCTS, and incidentally to Chicago recently. Morrison, Merrill & Co. are dealers in retailers and builders' supplies and Mr. Merrill stated that they looked forward to a great year's business in 1911.

William Fisher, of the Fisher Lime & Cement Company, Memphis, Tenn., was a Chicago visitor last week. He reported that he closed up a very successful year and looked forward to 1911 being an active one, notwithstanding the clouds hovering over some of the industrial companies.

The Rucker Concrete Stone Company has been incorporated at Schertz, Tex., with a capital of \$15,000.00. The incorporators are G. W. Rucker, H. J. Trolinger, William Schultz, and others.



The National Builders' Supply Association

Meets Annually.

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Official Organ, ROCK PRODUCTS

CLEVELAND RETAILERS.

Cleveland, O., Dec. 20.—Business with the retailers in this section is dull this month, owing to the unusually early entry of the winter season. A year ago building continued until the holiday season, and two years ago it went on with short interruptions for most of the winter. There was a decided check, however, put on building here about the middle of November, and while some small jobs are still going on, the contractors for the most part have suspended operations for the season.

The year just closing has been a banner one with most of the big retail supply houses located in Cleveland. The volume of building has been large, the actual amount spent for this purpose being nearly \$20,000,000.00, much of which has gone into the pockets of the supply men for materials. The volume of cement which has been sold has been unusually large this year, as the city some months ago extended its fire limits to many parts of the city, requiring fireproof and semi-fireproof structures where frame ones were formerly permitted.

The Cleveland Builders' Supply Company, which about a year ago assimilated the retail department of the Kelley Island Lime & Transport Company and which is now a subsidiary concern of the latter firm, has done an immense business in Cleveland and vicinity, according to officers of the company. An event of the year has been its moving to larger and finer quarters in the Hippodrome building, where a number of fine displays of building materials have been installed. In the company's brick departments some excellent orders have been captured, including the brick for many of the largest buildings which have gone up this year.

The Queisser-Bliss Company, one of the newer supply firms which has entered the local field, has had a fine growth during the past year, especially in its brick and terra cotta department. Representing one of the biggest terra cotta firms in the country, the Queisser-Bliss Company has captured some of the biggest orders of the season, including several of the new Euclid avenue skyscrapers which are now in process of erection. R. L. Queisser, president of the concern, during the past month was named as chairman of the membership and acquaintance committee of the Builders' Exchange, of this city.

THE COMING CONVENTION.

National Builders' Supply Association Making Great Plans for Meeting in Chicago February 21-32.

Secretary James W. Wardrop, Room 404 Frick Building, Pittsburgh, Pa., and other officers of the National Builders' Supply Association, are making great preparations for a red letter meeting of the association at the Hotel Congress Annex, in Chicago, February 21-22. This will be during the Chicago Cement Show and special efforts will be put forth to make the occasion one of profit as well as of pleasure for every builders' supply man who comes to Chicago at that time.

In its November issue ROCK PRODUCTS, in making the first announcement about the arrangements for this meeting, made some comments which it would be well for every retailer to ponder upon, particularly if he is not a member of the association. Members and non-members: Make of 1911 a memorable mile-post in the progress of the builders' supply business by bringing into the protective and elevating fold of the association every eligible who now remains outside. Be on hand with recruits at the February meeting.

ILLINOIS DEALERS' ASSOCIATION.

Annual Convention to Be at LaSalle Hotel, Chicago, February 15-17.

The annual meeting of the Illinois Lumber and Builders' Supply Dealers' Association will be held February 15-17, 1911, inclusive, at the La Salle Hotel, Chicago, Ill. George W. Hotchkiss, secretary-treasurer of the association, stated that the meeting in February would probably see an innovation in that there would only be one session each of the three days the convention is to last. Plans are being formulated to have the sessions start at 9:30 o'clock in the morning and end at 2:30 o'clock in the afternoon, thus giving the delegates to the convention a chance to look around Chicago and see some of the sights.

Another novel feature to be inaugurated in February is the elimination of a large number of papers and addresses. Mr. Hotchkiss has sent out letters to all the dealers of Illinois asking for a reply from them stating in detail what it costs them to do business. A comprehensive summary will be prepared from these replies and will be presented at the convention. All the attendants of the sessions will be expected to get up and talk. Much of the formality heretofore prominent will be done away with, and each person present will have a chance to get up and speak his views without a formal presentation.

Mr. Hotchkiss looks forward to a well-attended meeting and believes much good will result from the proposed new method of conducting the program.

ST. LOUIS RETAILERS.

St. Louis, Mo., Dec. 14.—While none of the manufacturers and dealers in building materials of St. Louis ever have contemplated imitating ruin by retiring to some secluded spot, where during the winter season an unfurnished cave is appropriated in order to hibernate, yet they are obliged to accept with philosophic resignation a somewhat protracted lull in the demand for lime, plaster, cement, etc. There is, however, considerable work in most offices that has been set aside for "a more convenient season," accounts of stocks to be taken and books to be balanced, which fills up the time pretty thoroughly until the turn of the year.

Reviewing the past year from a manufacturers' standpoint, the spring season was hurt somewhat by the coal strike, and with contractors and dealers the threat of a general local building trades' strike was for a while a serious menace. Later came the scare incident to the propaganda of the prohibitionists. At the present time there are no clouds on the local horizon, but of course it is too far ahead to indulge in predictions.

Mr. Hunkins, of Hunkins-Willis Lime & Cement Company, states that at present conditions are unfavorable for doing very much locally in the sale of building materials. In the first place, the Mississippi river being at a low stage of water the Meramec Portland Cement & Materials Company, whose sales agents their company are, find that it handicaps getting out sand. At their Meramec river plant they are experiencing difficulty in getting sufficient equipment from the railroad to move the gravel they are taking out of the river there. In

St. Louis not much can be done except on buildings that are covered in. There is still a fair demand for building materials for shipment to the South.

Manager McDonald, of the Independent Lime & Cement Company, stated it gave him a good deal of satisfaction to report that not only were they quite busy, but, furthermore, they expect to be busy all through the coming winter, owing to the nature and conditions of some of the contractors' work whom they are supplying with building materials. Looking back over the company's maiden year in trade, Mr. McDonald said that their books show a steady gain for each month's business since they started and in the parlance of the day, inquired, "Now, what do you think of that?" When the ROCK PRODUCTS man can tell the truth and pay a well deserved compliment at one and the same time, he never fails to rise to the occasion and therefore told Mr. McDonald confidentially that it would appear that the company chose the right man for manager at the very start!

The Contracting & Supply Company, of St. Louis, very naturally finds its business to rise and fall with that of the various contractors who own its stock, and they, in turn, are subject to general conditions and the season of the year. Most of these parties are either engaged in finishing up jobs already underway, or are laying the pipes for securing building contracts for next spring. They are disposed to blame the prohibition agitation of last summer and fall for the falling off in building work in St. Louis for the closing quarter of the year.

CHICAGO RETAILERS.

As usual at this time of the year, this month practically marked the close of the season for building materials and supplies. There has been a general slump all over Chicago in the building material market this month, although some dealers are still busy on work started during the summer months. Every year as soon as cold weather sets in the slump comes, and this year it came with a thud, but the dealers are still optimistic, as the outlook for 1911 is particularly bright, owing to the large number of buildings proposed to be erected in the spring.

Fred Kraeckmann, second vice-president of the Knickerbocker Ice Company, 171 La Salle street, said: "We have felt a letdown this month, owing to the severe weather that has set in, but look for a very good business during the latter part of March or the first of April, when the new season will start. This letdown is general throughout the trade and always comes about Christmas time each year. Business will pick up in spasmodic jerks as the weather moderates at times, though. The outlook for 1911 is very encouraging to us. Collections are rather slow now, but will probably pick up soon."

The Stearns Lime and Stone Company, 165 Randolph street, found business very unsettled this month. There was hardly any change in their shipments, though, from last month. The prices are remaining about the same now. They have not had time to think much about the prospects for next year, but think things will be in pretty good shape.

The Wisconsin Lime & Cement Company, 138 Washington street, find business about the same as it was last month. Considering that there is always a falling off of orders when severe weather comes, their shipments remain firm and the outlook is encouraging.

WEST COAST RETAILERS.

San Francisco, Dec. 15.—The twentieth annual banquet of the Builders' Exchange, of San Francisco, was held at the Palace Hotel on the evening of November 19. It was an event to be remembered as one of the happiest gatherings of that progressive body since 1906. Joseph J. Phillips, acting as toastmaster, added materially to the joy of the occasion. Practically all the lime, cement and building material firms of the city were represented, W. H. George, of the Henry Cowell Lime & Cement Company, being one of the principal speakers. Entertainment was furnished by the Knickerbocker Quartet and vaudeville performers from several local theatres. The last speech of the evening, and one of the most interesting, was given by Francis J. Heney, who attended in place of Governor-elect Johnson.

The local material business for November was dull, the record as shown by building permits issued being only \$1,048,071.00, little over half the valuation for the same month last year. A number of large contracts have been let since the first of December, however, and the outlook for next year appears fairly encouraging.

The dullness in San Francisco is largely com-

pensated by the great activity in other Coast cities, and especially in nearby towns. The city of Oakland, across the Bay, with its suburbs of Berkeley and Alameda, is building up every rapidly with high-class homes and business structures, in addition to which harbor, sewer and street improvements are beginning to require vast quantities of material. The growth of this city in the next few years will be greatly accelerated by the improvements made there by the Southern Pacific Railroad, which is covering the district with a network of electric lines, which, with its three ferry lines, will establish quick and easy communication between the undeveloped suburbs and the business centers. It is expected that some of the newly transformed and extended lines will be in operation in a couple of months and, in expectation of this, foundations are being laid for a great number of new homes. At the same time contracts have recently been let for several large business and office structures in the downtown center of Oakland.

One of the greatest projects now under way is the improvement of Oakland harbor. A bulkhead of rock-faced construction will be built for 7,000 feet across the basin between the Southern Pacific and Key Route moles, at an expenditure of about \$100,000.00, after which a number of concrete piers will be built. Plans for this work have been completed, and bids will be called for shortly. In preparation for this work, it will be necessary to extend a number of large concrete sewer mains for several thousand feet, and plans for this part of the work were approved November 23.

Other work in Oakland will include a \$200,000.00 concrete station for the Southern Pacific Railroad at Sixteenth street, which will be erected in the spring. This building will be 60 feet in height and 278 feet long.

Architects Righetti & Headman are preparing plans for a 5-story concrete apartment house to be erected in Oakland at a cost of about \$70,000.00.

The Guaranty Trust & Savings Bank, of Sacramento, Cal., will erect a 6-story reinforced concrete office building next spring, at an estimated cost of \$125,000.00.

Plans are being prepared for a \$25,000.00 concrete hall of records to be erected at Hollister, Cal.

Architect Harrison Albright, of Los Angeles, is drawing plans for a \$100,000.00 reinforced concrete hotel to be built near San Diego, Cal.

The Western Building Material Company, of San Francisco, one of the largest retail firms in the city, has added to its list of agencies that of the Carnegie Brick & Pottery Company, which has given up its own sales department.

THE DENVER MASTER BUILDERS.

Denver, Col., Dec. 15.—Throughout the upbuilding of Denver there has been no agency more potent and effective than the Master Builders' Association. This is an association of builders who work in structural steel, stone and brick, who plaster and paint, put on the roof, do the plumbing, install electricity, put in tile and marble, and even excavate and manufacture brick and lumber. The members of this organization can erect any part or the whole of any kind of structure from the modest home to the mansion and modern skyscraper.

Included in its growing membership are all the important contractors and material men in the city. So powerful has it become there is a general desire on the part of all builders and allied industries to enroll in its membership books. As a result the membership has been more than doubled in the last eighteen months. The membership now is one hundred and ten.

The organization exists not only to protect its members, but to protect the people.

A new feature, unique and practically unknown out of Denver, was originated by the present board of directors. The association guarantees the fulfillment of all contracts by its members. This shows the confidence the association reposes in its members. If it was made up of tricksters and cheaters the directors, of course, could not offer this guaranty. So the poor man who is putting his all into a home and the business man are both amply protected against loss of either time or capital.

The association, with its powers of initiative and its new ideas tending to bring the public closer to the builder, has the unqualified endorsement of the Colorado Chapter of Architects. This means that there is no friction between the architect and the builder—an unfortunate condition that too often exists, generally to the lasting sorrow and financial loss of the man paying for the new building. Here there is no clashing—only cooperation and mutual helpfulness. The builder profits by the feeling of amity.

The association is meeting with such unbounded success and its methods of doing business are so

novel and commendable, it has attracted attention all over the country. As an evidence of this, inquiries have been received from the building exchanges from many of the large cities of the United States, and even from Canada, as to the general plan of the organization. In many instances, where action is wanted without delay, details of the methods are requested. This is considered a high compliment to the master builders of Denver.

In another respect the Master Builders' Association has the good will and praise of all the people; it stands for home industry. Wherever and whenever possible it favors the use of Colorado material and promotion of home manufacturing enterprises. Invariably and on every occasion its members will be found in line with the numerous movements making for a greater and more beautiful Denver. This has been proven so often in hard work and cash.

A glance over any portion of Denver, business or residential, fashionable or bourgeois, convinces the observer that the architects of Denver are not merely architects, but artists as well, and that all did not study at the same school. Infinite variety is what makes Denver beautiful and interesting. But the beautiful effects could never have been obtained had the master builders been unable to properly interpret the works of art turned out by the architects. Thus it is generally conceded that these masters of art and construction are the equals in ability of their confreres in any other part of the country. There is a feeling here that they should have the recognition of the building public as such. As a matter of fact, they HAVE it.

TOLEDO RETAILERS.

Toledo, O., Dec. 20.—With 1910 rapidly drawing to a close, dealers generally are more interested in the outlook for the new year than in the one ending, thinking, as they do, that what is finished cannot be improved upon. Speaking generally, dealers in this vicinity are reasonably well satisfied with the year's business, although it was not as heavy as anticipated twelve months ago. This has been caused partially by a lethargy on the part of contemplative builders, who felt and announced prices were too high and that indications pointed to cheaper operations in 1911. In fact, the Toledo board of education may be said to have had considerable influence on the year's operations. Having been authorized to spend well toward a million dollars for new high schools, it took bids early in the year, and after canvassing them announced that it would delay building till next season. Within the past few days new bids have been taken and the contracts awarded, at a saving of nearly \$200,000, according to announcement by the president of the board.

The new year gives promise of being one of the best, if not the very best, building year Toledo has ever had and already building supply men are preparing for an aggressive campaign. Of new structures already being planned, the aggregate is placed at \$10,000,000. This, of course, does not include the usual run of building, such as flats, small factories and the like. Of the more important of these there is a million dollar addition to the Ford Plate Glass Company, doubling the capacity of the National Supply Company, whose present plant covers seven acres and the new additions of which are to cover eight more, or mean more than the doubling of the present capacity; two new high schools, the general contracts for which have just been awarded to the H. J. Spieker Company at \$289,000.00 each, and which covers the general construction contracts; a half million dollar addition to the Woolson Spice Company's plant, which, when completed, is to be the largest roasting plant in the world; a hundred thousand dollar store building by the Mockett Clothing Company, a building of similar cost by the Gasser Coffee Company, a \$100,000.00 enameled brick manufacturing plant by the Enameled Brick Company, which has just been organized by J. J. Urschel and a number of his business associates; a million dollar dockage by the C. H. & D. railroad, the completion of the new Cherry street bridge, the foundations of which are now being laid and the complete cost of which will be close to a million dollars; a new stock yards at the cost of \$100,000.00, and a new \$100,000.00 Masonic temple at Defiance, Ohio. Reports from architects in smaller towns in northwestern Ohio are equally gratifying and indicate an unusually heavy season.

In the erection of all the above enumerated structures, concrete will form an important and principal part and supply dealers are accordingly anticipating and preparing for a heavy demand for this and allied products.

Otto Augsburg, one of the founders and for several years vice-president of the Ohio Builders' Supply Company, has sold his interest in that con-

cern and will enter a new field of business activity, although not yet having decided what. At present he contemplates leaving Toledo and locating in the West.

Fred Sprott, one of the travelers selling building supplies in northeastern Ohio and representing a Pittsburg firm, has closed his business year and will help out a local jewelry firm during the holiday rush. Mr. Sprott reports a fair business for the year, although slightly less than anticipated. He states that his firm anticipates at least a 50 per cent increase in business for 1911. He will resume his traveling business shortly after the first of the year.

The Toledo Builders' Exchange has again altered its quarters on the top floor of the Smith & Baker building, the social quarters of the organization occupying more spacious quarters than before. The exchange has succeeded in so popularizing its rooms that the majority of the members look upon them as their downtown headquarters and spend much of their time during the duller months in them. President Pickett states that he has yet to find a similar organization where the same spirit of good fellowship and equal competition is manifest as in the body over which he presides as president.

BIRMINGHAM RETAILERS.

Birmingham, Ala., Dec. 15.—The ante-holiday season is usually a dull one among the building material dealers in this section of the country. However, this year, to the surprise of many, business is fair and does not show as much weakening as it has shown in former times.

As this month marks the end of another year, it is natural for one to review the events and conditions of the past months, speaking in behalf of the dealers, it may be safely said that while 1910 was not an extraordinary year still it brought forth many blessings and rewards to every one.

The Carolina Portland Cement Company has enjoyed a very prosperous month, although most of their sales were small quantities of material, the larger amount of sales sufficiently filled the gap. Cement was a leader this month, while sand and gravel ran as a close second, in fact, not enough cars could be obtained at the pits to transport the quantities called for by orders. Mr. Walker, of the company, had the following to say: "Business during the past year has been very good, although prices were not all that could have been desired. More and more cement is being used every year, for the people of the country are gradually awakening to the virtues of concrete as a building material."

The Fulewider Building Material Company reports business to be exceedingly good for this time of the year. Among the large sales, the disposal of 10,000 barrels of cement for street work in Boyles is most worthy of mention. Large contracts for plaster have also been recorded lately, among which might be named the supply of the material for the plastering of the Ensley and Cunningham high schools, the work on the former being completed, but still in progress on the latter.

The Building Material Men's Exchange held a meeting on the 8th of December, at which time they adopted the following motto:

"OUR MOTTO."

The chancellor presents a word
Of Latin derivation,
Its polysyllables, when heard,
Express co-operation;
In current speech it goes to teach
In every sort of weather,
To win in full, that we must pull,
Pull strong and all together.

This may not be great poetry, but it certainly is excellent sentiment, and the exchange is to be congratulated on adopting the above lines as its guide in life. This motto, which was culled from the speech of Mr. Sibley, delivered at the second annual banquet of the exchange, will be painted on plate glass and hung in the reception room of the headquarters, where all who enter may see and be inspired.

Mr. Forbes, the ever-enthusiastic secretary of the Exchange, in an interview, had the following to say: "Although the association is only two and a half years old, much has been accomplished. The Exchange Credit Bureau has been worked more fully than any other department, and great service has been rendered to members. However, in my estimation, the greatest benefit derived from this organization has been the inculcation of the 'get-together spirit' into the dealers, who now realize that the good of one is the good of all and vice versa. Our membership is constantly increasing, but we shall soon make a campaign for more members, and thereby swell the number of those who are working for the betterment of the ethics of the trade."

BLOOMINGTON RETAILERS.

Bloomington, Ind., Dec. 16.—A year ago L. E. Shaw became the proprietor of The Bloomington Coal Company. He has been awarded some of the largest contracts for furnishing coal in Bloomington, among them being the University of Indiana, located here, which uses 60,000 tons of coal a year. He handles cement by the carload, selling it to contractors, as well as paving and building brick. He furnished 500,000 paving brick, about half of what was used in paving the streets around the Court House Square. During the year he handles many carloads of Universal Portland Cement. He reports business good and decidedly better than last year.

S. O. Lanum for the past seven years has successfully operated a planing mill, selling doors, sashes, moldings, stairwork and balustrades. He sells cement, plaster and other builders' supplies, which he will keep in store in quantities in the near future as soon as he can perfect arrangements for a suitable site for a yard with convenient railroad transportation facilities, probably by early next spring. In the erection of the Showers furniture factory he furnished a quantity of lumber.

C. M. Fitzpatrick, one of the liveliest contractors in the central part of the state, was awarded the contract for paving and laying the sewers in College Avenue and Fifth Street last August and completed this work December 1. It took 500,000 paving brick and 1,700 feet of sewer pipe to complete this work. He was furnished the brick through the Bloomington Coal Company, and L. C. McDaniel furnished the sewer pipe. Three thousand barrels of Universal Portland Cement were used in the curbing and laying the concrete walks on these two streets. He has done his work well and quickly. Among the important contracts awarded him was that of the Indianapolis & Eastern Traction Company for the building and equipping of its



OFFICE OF L. C. McDANIEL, BLOOMINGTON, IND.

line from Indianapolis to Greenfield, a distance of sixteen miles, including rolling stock, ear barns, etc., in its entirety; also a contract for the first street paving done in Crawford, amounting to \$50,000.00. This paving was done on Main and Green Streets. Mr. Fitzpatrick has been actively engaged in this line of business for twenty-two years, making his home in Greenfield, Hancock County, Ind.

L. C. McDaniel is an old resident of Bloomington, has been active in building material circles here for eleven years, and opened a yard with a complete line of builders' supplies at Fifth Street and the Monon tracks two years ago. He does a prosperous business and handles large quantities of cement, plaster, sewer pipes and coal. A switch track 150 feet in length from the Monon road runs alongside his yard convenient to warehouse and coal bins. The storage capacity of his warehouse is seven carloads, keeping somewhere around 450 barrels of cement and plaster in store. The yard has three broad driveways, admirably arranged for handling material economically. It is in every respect an up-to-date yard. He handles Universal Portland Cement, plasters of the U. S. Gypsum Company, sewer pipe of A. L. Bowman & Co., Indianapolis; bank and river sand from Bedford and Gosport, fire brick of the Missouri Fire Brick Company, of St. Louis; lime in bulk principally, selling but very little hydrate. The lime he gets from Milltown, Ind. He sold 3,000 barrels of Universal Portland Cement used in street work this fall; the total number of barrels of cement he has handled runs up close to 8,000. He reports business having been good this year and very satisfactory.

Hughes Bros. are the oldest builders' supply dealers in Bloomington, establishing their lumber yard twenty-seven years ago. They now operate three yards, one at 219 West Fourth Street, one at 302 to 312 West Fourth Street and another at 320 to 324 West Fourth Street, the Monon railroad tracks running alongside of each and a private



OFFICE OF HUGHES BROS., BLOOMINGTON, IND.

switch track 276 feet in length from this road running into the yard at 302 West Fourth Street. The storage capacity of their warehouse is 600 barrels of cement and plaster. They deal in Lehigh, Atlas and Speed Portland Cements; sell some Louisville natural cement, Keene's and Blanks' white cement; the product of the American Cement Plaster Company and the Acme Plaster Company. They handle about 10 cars of plaster and 100 cars of Portland Cement; about 10 to 15 carloads a year of sewer pipe, flue lining, fire brick and fire clay from Louis McNutt, of Brazil, Ind., and Parker Russell Milling and Manufacturing Company, of Louisville, Ky.; they wholesale and retail sand and gravel. They are in receipt of a carload of sand a day. Lime in bulk is received from Milltown and some from Horseshoe, at Bedford, Ind. Twenty-five carloads of this lime is sold by them a year. They report business good in builders' supplies, coal and lumber.

LIVE LINTON RETAILERS.

Linton, Ind., Dec. 15.—Fifteen years ago the lumber yard of the Greer-Wilkinson Lumber Company was established in Linton, Ind. T. R. Black is the resident manager. Its principal business is lumber, furnishing to its trade sash, doors and blinds, and carries a line of builders' supplies. It handles Lehigh Portland Cement, U. S. Gypsum Company's plasters, lime in bulk, barrel and hydrate shipped to it by J. B. Speed, of Louisville, Ky.; fire brick and fire clay from Wm. E. Dee, Chicago; sand and gravel from the Wabash Sand and Gravel Company, of Terre Haute, Ind.; it also manufactures and handles concrete blocks, used principally in foundations. Two-thirds of the foundations are laid in these blocks. Manager Black stated that building in Linton this year is normal and that 20 per cent of the cement his company handles is sold to farmers. The storage capacity of the company's warehouse, containing plaster and cement, is 600 barrels. A switch track from the Indianapolis Southern railroad 300 feet in length runs into the yard and material from cars unloaded into the warehouse without trucking. The yard has three driveways and is practically arranged for handling all builders' supplies economically. This company does a lively and prosperous business.

T. E. Harris, secretary, treasurer and general manager of the New Union Lumber Company, at Linton, reports that there was more building this year than last, and also that the volume of trade was larger and more satisfactory. The company has sold to farmers fully 40 per cent of all the cement it has handled this year, and say that fully 60 per cent of all the foundations laid were of concrete. The company handles quite large quantities of Universal, Lehigh and Speed Portland Cement, American Gypsum and Acme Cement Companies' plasters, lime in barrels from J. B. Speed & Co., Louisville, Ky., selling only a small quantity of hydrate; sewer pipe from Louis McNutt, Brazil, Ind.; fire clay and fire brick from La Cede Christy Clay Product Company, St. Louis, and Montezuma Brick Company; sand and gravel from the Wabash Sand and Gravel Company, Terre Haute, and some from the White River in Indiana. In its warehouse it keeps in store 600 barrels of



GREER WILKINSON LUMBER CO., LINTON, IND.

cement and plaster. It also has a yard at Jasonville and Dugger, Ind. All these yards have good shipping facilities, being on the tracks of the Indianapolis Southern and Southern Indiana railroads.

SULLIVAN RETAILERS AND CONTRACTORS.

Sullivan, Ind., Dec. 15.—"I have been in this same old spot—corner Broad and Harris streets—for twenty years, selling lumber, cement and plaster," said H. W. Davis, who has a good trade in Sullivan. He reports having sold 40 per cent to farmers of all the cement he handles and believes it will go to 50 per cent next year. He says business was not good this year because of low prices material is sold at in Sullivan, leaving practically little margin of profit. He carries Universal and Lehigh Portland Cement; Acme Cement Plaster Company's products; lime in barrel and hydrate from the Eichel Stone & Lime Company, Evansville, Ind., and J. B. Speed, Louisville, Ky. In finished coat plastering he finds that hydrate is used much more than in former years. Sewer pipe and drain tile from the Farmersburg Drain Tile Company, Indiana. Mr. Davis' principal business is lumber, sash and doors. He has handled plastering and cement three years.

"Forty per cent of the cement we sell goes to the farmers," said J. B. Black, resident manager of the Greer-Wilkinson Lumber Company, at Sullivan, one of the chain of some 34 lumber yards in the various parts of the state. "There is quite a lot of building work going on in the surrounding country, but not much of it in town." A switch track from the Indianapolis Southern railway runs into its yard, where material is unloaded from the cars into the warehouse. The storage capacity of the warehouse is about 1,000 barrels of cement and plaster. This yard was established six years ago. The company handles Lehigh and



OFFICE OF BLOOMINGTON COAL CO., BLOOMINGTON, IND.

Atlas Portland Cement; plasters of the American Gypsum Company; lime in barrel and hydrate, the last used more than in former years, from J. B. Speed & Co., Louisville, Ky.; drain tile from the National Drain Tile Company, Terre Haute, Ind. The principal business of the company is lumber, sash, doors and blinds. Its volume of trade in Sullivan has been large.

Charles Mankedick, one of the prominent contractors in Sullivan engaged in concrete construction, reports building this year in town very slow and work outside the town light all of this year.

Joe R. Lowdermilk, 525 W. Washington street, contractor for concrete construction work, is an old-time grader and bridge builder. He has had a good year and lost very little time. He used this year 900 barrels of Portland Cement. About 100 barrels went into foundations and 800 barrels into concrete walks and crossings he laid in six of the main streets in Sullivan. He was awarded the city contract for laying all crossings in South Main, South Court, East Jackson, North State and West Washington streets. He laid the concrete floor on the 30 foot span steel bridge across Black creek, two miles northwest of Sullivan.

W. T. Beck, contractor, 329 South Court street, has been a contractor doing concrete construction work in Sullivan for the last seven years. In his work this year he has used about 600 barrels of Lehigh, Universal and Atlas Portland Cements. He estimates that he has laid nearly one-third of all the concrete sidewalks in Sullivan this year. He received the contract for laying the concrete floors in two school buildings and work in the new City Hall and Christian church.

H. O. McKinley, one of the prominent and live contractors of Sullivan, has done a great deal of concrete work this year in the streets of the city, using large quantities of cement. He is a successful contractor, finishes his work on contract time and does his jobs well and according to specifications.

PARIS RETAILERS.

Paris, Ill., Dec. 16.—Walter and John Logan operate one of the prominent builders' supplies yards in Paris. They have been in business three years and are selling large quantities of material. This has been a good year for them. Their yard is alongside the "Big Four" tracks, which gives them good shipping facilities. The storage capacity of their warehouse runs close to 600 barrels of cement and plaster. They handle Medusa and Chicago AA Portland Cement; United States Gypsum Company's plasters; hydrate exclusively from the Kelly Island Lime & Transport Company; Chicago Sewer Pipe Company's product of Brazil, Ind., and wood lath. They sold 16 cars of sewer pipe since last April. The Logans three years ago introduced in Paris the wood fiber plaster and today sell but very little other plaster. Walter Logan, senior member of the firm, has served seven terms as city clerk and is very popular in Paris.

Art. Risser & Co.'s yard in Paris, conveniently located near the "Big Four" tracks, has been in existence more than forty years, while the present firm has been established in this yard thirteen years. The storage capacity of their warehouse is 200 barrels of cement and plaster. They report that the latter part of the fall business was fair. They handle cement of the Marquette Cement Manufacturing Company; U. S. Gypsum Company's plasters; lime in barrel and hydrate (mostly in barrels) from the Ohio & Western Lime Company, and clay blocks, used here in laying foundations. Mr. Risser reports he estimates that fully 40 per cent of the cement they sell goes to farmers.

Edward Propst, president of the Propst Lumber Company, whose large yard is located at the corner of South Main and Madison streets, said: "In this part of the state we were the first ones to sell plaster called 'Rockwell,' which we find gives excellent satisfaction. We estimate that half of all the cement we handle we sell to the farmers. We are pushing hydrate, and find it is being



W. S. LOGAN'S LUMBER YARD, PARIS, ILL.

used more every year." This yard has a switch track 150 feet in length, running beside its warehouse, where cement and plaster are easily unloaded from cars and put under shelter. The storage capacity of this warehouse is 600 barrels. The company operates another yard opposite the Vandalia depot, which is used principally for storage purposes. These yards are admirably arranged with broad driveways, enabling the economical handling of all materials. The company was established 25 years ago. The company handles Lehigh and Universal Portland Cement; lime from the Ohio & Western Lime Company in barrels and hydrate; sewer pipe from Wm. E. Dee, of Macon and Brazil; Weaver block clay in Brazil and plasters from the U. S. Gypsum Company.

Half a block southwest of the public square in Paris, on Central avenue, W. S. Logan started in business in May, 1875, and has been doing a rushing and successful business ever since. The ground occupied by his yard is one full block. On this ground is his wagon yard, with barns stabling, as a rule, some 40 head of horses and mules, which he buys and sells. It is known for miles around as the greatest horse and mule market in that section of the state of Illinois. The yard is located between the Vandalia and Big Four tracks. Two of these tracks run into the front yard and four tracks into the rear yard. Broad driveways through the yard ensures economical handling of material, with the warehouse between driveway and track for quick loading and unloading of cement and plaster, of which the warehouse constantly stores 700 barrels and more. He handles Universal and Speed Portland Cement; plasters of the Colonial Wall Board & Plaster Company, of St. Louis. He handled 10 carloads of this plaster and sold 10,000 barrels of cement this year. He estimates he sold one-half of this quantity of cement to farmers. He buys his lime of the Ohio & Western Lime Com-



ART RISSE & CO., PARIS, ILL.

pany and sewer pipe from Wm. E. Dee and the Chicago Sewer Pipe Company.

Vermilion, a little town with a population of 400, seated in the midst of one of the richest agricultural districts in the state of Illinois, five miles distant from Paris, has one dealer who handles builders' supplies. J. A. Hornberger started here 50 years ago in the building material business, and for 40 years handled builders' supplies. C. A. Hornberger, his son, was taken into partnership in 1898, and the firm name then changed to J. A. Hornberger & Son. This firm possesses one of the most attractive hardware and builders' hardware stores in that part of the state. Their yard is within one block of the Big Four tracks and the interurban railway, giving them splendid shipping facilities. Their warehouse has a storage capacity of 500 barrels of cement and plaster. They handle Lehigh Portland Cement, plaster of the Acme Cement Plaster Company; lime from the Ohio & Western Lime Company in barrels and intend putting in hydrate next year, and roofing from the National Roofing Material Company, of Edwardsville, Ill. Mr. C. A. Hornberger estimates that one-half of all cement they sell goes to farmers. They have had a good business year.

THE TWIN CITIES.

Minneapolis, Minn., Dec. 18.—The year is closing with a record for building work which was not to have been expected, if only the last few months were to be taken into consideration. The fact is that the volume of building, planned, projected and started in the first half of the year, involved so much that there was a heavy amount left over until the latter part of the year, and this, with some few new jobs, have made up a total which equal many former years, even if in some cases they do fall behind the total of last year by a little.

And what counts more yet is the fact that the past year has been generally a profitable one for the different materials. The cement trade has been successful in disposing of a large tonnage and generally at good profit-bearing figures, so that the figures, both on volume and profit, are quite pleasing.

The prospect for the year to come is something of a question. According to some of the prophets, it is time for a commercial depression of considerable size. Some liken it to the year 1907, when the bankers' panic struck, but expect worse. Others vary their views from a modern depression to

something a little under the 1907 experience. On the whole, it is largely a matter of development. An adjustment of conditions is certainly due, but the Northwest has been quietly settling into a somewhat more conservative state of things, and is already on a fairly conservative basis. After the winter of that sort of thing, if there be no further turn of affairs, it should be quite within the probabilities that things would resume upon about as active a basis as they have been running. Already there are a number of promising indications in this respect. A number of large-sized jobs are tentatively in view for the first of next season, and will undoubtedly be taken up, unless something unforeseen intervenes. The smaller work is not planned so far in advance, and at the holidays there is comparatively little counted upon.

BUFFALO RETAILERS.

Buffalo, N. Y., Dec. 20.—General improvements in business and building circles are noted and prospects are pointed to a continuance of such conditions for the coming year.

Reinforced concrete will form the construction of the improvements on the Augustine Automatic Rotary Engine Company, which will spend \$100,000 in the improvement of its plant on Elmwood Avenue, Buffalo, next month. G. Morton Wolf is the contractor and is receiving figures on construction at the present time.

In two weeks actual building operations will be begun on the Church of Christ Scientist Independent, at 544 West Ferry Street. The structure will be 60 by 106 feet with an additional wing 30 by 30 feet. The architect is Robert Greenfield, of New York, who has been retained to draw the plans. The edifice represents an outlay of \$70,000, consisting of brick and stone.

An association formed by the Builders' Exchange held a musicale and supper at the Builders' Exchange, December 2. It was attended by over 100 members and friends. A musical and literary program was given.



NEW LUMBER YARD OF WALTER & JOHN LOGAN, PARIS, ILL.

John Black, of John Black & Co., has just issued an interesting book entitled "A Book of House Designs With General Floor Plans." These designs and floor plans are full of valuable suggestions for those who contemplate building for home or investment. An entire chapter deals with the comparative costs of the different forms of construction, such as frame, brick and cement. The information contained in this book is of utmost value to prospective builders.



THE PROBST LUMBER COMPANY, PARIS, ILL.

NEW YORK RETAILERS.

New York, Dec. 15.—The last month's business has been poor in almost all building lines. Brick, for instance, has been almost at a standstill, with so little new business that the customary November advance did not materialize.

"While there was a fair amount of business done in the last month," said G. W. Lavender, of Wm. H. Barnes & Son, brick manufacturers, "it was mostly for finishing up operations previously begun, and new business seems nearly paralyzed. Money is tight, collections being very poor, and the banks and loan companies will not advance such large sums of money on the given investment as formerly. Building is therefore discouraged and the disposition is to wait for spring in the hope that money will be freer then. We usually do good enough business to be able to advance the price on common North River brick, but it remains this month at \$5@5.50 instead of going up to \$6@6.50, where it ought to be."

P. Murchie, of H. B. Murchie & Co., said of the lumber and lath situation:

"The recent storms have cut into the lath business considerably, so that business is now very quiet. A fair amount of lath is going somewhere, although there seems to be little demand in the city, and there has not been the customary winter advance in lath. Prices remain at \$3.40@3.50 per thousand, according to quantity and quality. The lumber situation is the same as lath, especially with our firm, business being too dull to encourage any advance. Every one seems to be waiting for spring."

H. B. Homan, of Homan & Puddington, had the same story to tell of the lath situation.

"There is no sale for lath at the present time," he said. "Shipments are all over and, although we handle ourselves 150,000,000 of the half-billion lath sold in New York yearly, we have only 5,000,000 available now. The price is \$3.40@3.75, as it has ranged all year, but it ought to be \$4.00 and over. Spruce timber, which we handle extensively, is not being milled now, and there is no quotable price. Everybody is chopping block."

J. G. Shaw, of the Clinton Point Stone Company, dealers exclusively in broken stone, said that this was the quiet season of the year, when every one in his business expected things to be dull.

"There is a fair demand, however," said Mr. Shaw, "from people who are closing up their business for the year and wish to lay in supplies for existing orders. There are no new inquiries coming in, and all our sales are on old contracts. We naturally vary a good deal in our prices, but quote now 85c@1.10 per ton in Greater New York, according to size and destination."

Lawrence Rimkeyser, of Tafel & Rimkeyser, was not at all despondent over the condition of the cement market. This firm handles brick especially for building fronts, paving brick and other materials, and finds that for the month just past cement is the best item on their list.

"Of course our own situation may be not typical," said Mr. Rimkeyser, "but we found the month, on the whole, satisfactory as far as cement was concerned, not only for engineering works, such as docks, paving and walks, but for concrete work."

MEMPHIS RETAILERS.

Memphis, Tenn., Dec. 13.—Architects, building supply firms and contractors have plenty of work on hand for this season of the year, though the approach of the holidays will relieve the activity of the situation somewhat until after January 1. The normal amount of building, however, will leave little cessation for the supply firms. The cement market is firm; the sand and gravel business is active.

Architects Hanker & Cairns have prepared plans for a reinforced concrete laboratory and warehouse for the J. R. Watkins Medical Company, of Winona, Minn. It is to be erected at Iowa Avenue and Kentucky Street. It will measure 60x140 feet and will contain six stories and a basement. When completed on or about April 1, 1911, the building and property which it occupies will represent an investment of approximately \$100,000.00. Officials of the company state that Memphis was selected for the big laboratory and warehouse only after a thorough investigation of all available points in the South, for the reason that this city offers the greatest advantages as a distributing center.

The contract for the construction of the building on Main Street to be erected by the Penzel State in the city of Little Rock, Ark., has been lately let to Stewart & McGehee. The structure is to cost approximately \$30,000.00. The building will be two stories high, 100x140 feet.

Governor-elect B. W. Hooper is going right ahead with the agitation of the Tennessee State Highway from Bristol to Memphis. The engineers and road builders generally over the state are lending encouragement to the project.

At Gulfport, Miss., August Lindehal has let a contract for a fourteen-room residence on the corner of Thirty-second Avenue and Eighteenth Street.

Architects Weathers & Foley, of Memphis, Tenn., originally prepared plans for the new hotel in Mariana, Ark. The contract was let to B. M. Nelson, of New Decatur, Ala.

The contract for laying three miles of sidewalk pavement was awarded by the City Council to J. B. Silver & Sons, of Alliance, Ohio. It is ordered that work begins no later than December 15. This contract involves approximately \$10,000.00.

George Moore & Sons, of Nashville, Tenn., have been awarded the contract for the erection of a new high school building in that city. The bid of this firm for the general construction work was \$219,000.00.

In Mobile, Ala., B. C. Laughlin, of Helena, Ark., has purchased the southwest corner of State and Royal Streets, on which he will erect a nine-story building.

CENTRAL ILLINOIS RETAILERS.

Springfield, Ill., Dec. 21.—November building permits in Springfield were but \$54,460.00, about \$30,000.00 less than the same month last year, although the same number of permits were issued. The total for the year in Springfield will be about \$1,300,000, estimated, which will not miss the 1909 total much. No retailer has been found who is critical of this condition, as the smaller orders have been unusually abundant.

Monmouth enjoyed a \$325,000.00 building year.

A. H. Hubbard, of Urbana, and Spencer & Temple, Champaign, are architects who have plans for a \$75,000.00 Masonic Temple to be built in Champaign.

Fred Meints, Peoria contractor, will build the new Y. M. C. A. building at Peoria.

The Potter Lumber Company, of Arcola, with \$15,000.00, has been incorporated to deal in stone and cement products. The incorporators are H. H. Potter, Fred Matters and J. A. Potter.

Building material will be handled by the Highwood Manufacturing Company, of Highwood, Ill., capital stock \$6,000.00. The incorporators are Joseph Severson, Emil Carson and David Husted.

Guy H. Carroll is a new dealer in all kinds of building materials at Aledo, having leased grounds in that place for the erection of a large yard.

The Cicero Fuel and Building Material Company, of Cicero, was incorporated with a capital stock of \$2,500.00 to deal, among other things, in building materials. The incorporators are Albert F. Rose, Bertha M. Rose and Joseph M. Sweeney.

The recently incorporated Granite Coal & Mining Company, at Granite City, will deal in building materials. The incorporators are Edward L. Fountain, Edward Cannon and Albert H. Dorian.

Building materials will be handled by the Windy City Fuel Company, of Chicago, incorporated for \$20,000.00, with Ernest Palmer, Samuel A. Smiley and Dwight S. Bobb as incorporators.

The Anna Lumber Company, of Anna, has been incorporated with a capital stock of \$30,000.00, to deal in building materials. The incorporators are Walter Grear, Sidney C. Martin and J. N. Dickenson.

The Industrial Stone Company, of Chicago, has been incorporated with a capital stock of \$30,000 to manufacture and deal in lime, cement and other products of stone, sand, gravel and clay. The incorporators are Elijah R. Faly, Walter H. Readifer and Dean H. Dresser.

PITTSBURGH RETAILERS.

Pittsburgh, Pa., Dec. 15.—Every organization in Greater Pittsburgh is doing its utmost to boost the city's interest. For the first time in ten years there is a surprising unanimity of effort along these lines. At least to the extent that many of these municipal bodies are striving for the same thing in but slightly different ways. The big objects which are being sought now through municipal effort and state legislation at Harrisburg next month are the Pittsburgh & Lake Erie ship canal, the annexation of all of Allegheny county to Pittsburgh, the Pittsburgh subway and the South Hills tunnel. Some or all of these tremendous improvements are going to be realized next year, and along with them will come a wonderful increase in the demand for all kinds of rock products. Councils are already making arrangements to begin early in the year the spending of the \$10,300,000.00 bond issue. The Allegheny river bridges will probably be freed January 1, which, in itself, is going to start a considerable amount of heavy construction building

on the north side. All in all things look decidedly favorable for Greater Pittsburgh next year, and there is little doubt but that its records will go away ahead of anything seen here since the panic of 1907.

The cost of the municipal asphalt plant site is getting rapidly more. The site, which is located in Hamilton avenue, east end, was bought from George L. Peabody some two years ago, the viewers' award at that time being \$122,000.00. On a recent appeal to this award by the city of Pittsburgh, an Allegheny county jury allowed the former owners \$137,000.00. The plant contains about 60,000 square feet and has a Pennsylvania railroad siding on it.

Knox, Strouss & Bragdon report the usual lull in business at the close of the year. They are anticipating a very much better business all around next year in view of the hard municipal effort being put forth for greater improvements. The trouble this year has been a lack of general building operations as well as less heavy construction work than usual.

The Carnegie Steel Company has set aside \$3,000,000.00 for the biggest research laboratory in the world, to be located in Duquesne, Pa., under the direction of Dr. J. S. Unger. This, with other big outlays to be made by the Carnegie interests at their plants up the Monongahela valley, promises immense things before spring.

Pittsburgh business interests have been much exercised the past week over the prospective action of the Secretary of War in the matter of raising the Allegheny river bridges. A hearing was held in Washington, November 30, and it is possible that an order may be handed down soon for this change in grade. As the bridges are to be taken over by the city or county this winter the old objection that it would work a great hardship to the individual stockholders will have been withdrawn.

The Allegheny & Northwestern Railroad Company has awarded to John Schnaffner, of Butler, Pa., the contract for grading a large section of its line between Evan City, Pa., and Harmarville, Pa., twenty miles. Some heavy culverts and bridges will be put in along the road.

Building operations in Pittsburgh in November totaled \$1,011,890. This is a gain of \$249,691 over November, 1909, and the decrease in permits was 25, showing that the average building this year was a little better than last.

The commission which was named last spring to revise the building laws of Pittsburgh has practically completed its task to the great satisfaction of all builders' supply men. It will be some time before a report, however, will be published.

An ordinance will be introduced shortly in councils which will permit of the unlimited use of terra cotta block, certain kinds of which have been barred as a building material heretofore. The ordinance will also allow more altitude than at present exists in the use of reinforced concrete. An appropriation of \$7,000.00 was made last year for the expenses of this commission, and its findings will bring up a great change in the plans and specifications of architects and contractors here next spring.

Lock Four Brick Company has been organized by Charles Pooler, Samuel H. Pile and Frank Bly and will start operations soon at Lock Four, up the Monongahela river, some twenty-five miles above Pittsburgh.

The Reinforced Concrete Construction Company of Pittsburgh reports that 1910 business is winding up with a considerably larger total than last year trade. Just now the trade is quite a figure and is restricted to a few small jobs. The prospects, however, for 1911 business are exceptionally good in the Pittsburgh district, and the firm looks for much figuring after the first of the year.

Pittsburgh Builders' Supply Club.

The annual banquet of the Pittsburgh Builders' Supply Club was held at the Fort Pitt Hotel Monday evening, December 12. A total of eighty-five men were at the banquet table, this being much the largest and most successful affair that the club ever held. Excellent speaking was on the program and tokens of remembrance were there for the retiring officers who gave way to the new officers who were elected in November. Gernung's orchestra, one of the very best in Pittsburgh, furnished the music for the occasion and a fine vaudeville program was put on at the close. Among the guests at the banquet were Messrs. Black, of the American Gypsum Company, of Port Clinton, Ohio; Sherer, of the United States Gypsum Company, of Chicago; McCausland, of the same company, from Cleveland, and Richards, of the United States Gypsum Company, of Pittsburgh.

LOUISVILLE RETAILERS.

Louisville, Ky., Dec. 15.—The weather has put the kibosh on the building material situation in Louisville after having held off really longer than anyone had expected it would. A cold snap that lives up to the description has had the whip hand for the past three weeks, and the result has been a practical cessation of most outdoor building operations. Little new work is being started, of course, and so the building supply men have rested on their oars to a large extent, contenting themselves with cleaning up the season's business and getting their accounts in shape in order to be able to start 1911 in good shape.

The past year has been a reasonably good one in all lines and in some has been better than could have been expected at the outset. The cement trade, for instance, has had a most satisfactory year's business, the consumption being large in volume and prices stiffening to a point which enabled the manufacturers and dealers to see a margin of profit. The trade as a whole, therefore, is facing the new year with cheer, and is looking forward to a continuance of satisfactory conditions during the coming year.

Referring to cement, business has been light during the past month on account of the weather. A few operations have gone ahead but most of them have closed up to wait better conditions. As there are a large number of reinforced concrete jobs on hand, the weather has, of course, interfered materially with handling them, and has resulted in the consumption of cement in that direction being reduced to the vanishing point.

Roofing men have had to lay off to a large extent also, as the snow and ice has made such work impracticable. The tile and flue people have been able to do little, although they report conditions fair; while material men in other lines say that while things are as good as could have been hoped for, there is comparatively little doing.

J. B. Speed & Co. reported business slacking up considerably but with a normal volume for this season of the year. Henry Gray, treasurer of the company, said that he regarded the season just past as a satisfactory one from the standpoint of the cement manufacturer. J. B. Speed, head of the company, has given \$2,000 to the Y. M. C. A. building fund of \$350,000.00.

"The Union Cement & Lime Company," said George F. Meldrum, "is closing up its books after a satisfactory year's business. Trade at present is dull, as is to be expected, and little cement and lime are being used. Prospects for next year are good." John L. Wheat, of this company, who is a leading citizen, is much interested in the campaign of the Y. M. C. A. for a new building, and has subscribed \$500.00.

Edward Streicher, of the National Roofing and Supply Company, said that business is seasonably dull, and that little is doing in the roofing line. Concrete lines are also dull, although some flat work is being handled. There is plenty of business in sight to be handled as soon as the snow and ice disappear.

The Central Concrete Construction Company is finishing up the season's business after a relatively good year. Indoor work constitutes the bulk of business now as it is, of course, difficult to handle any outdoor jobs to advantage. Both P. S. Hudson, manager of the company, and R. C. Morris, president, are working on Y. M. C. A. teams in the interest of a new building.

Burrell & Walker are doing comparatively little now, the frozen condition of the ground preventing many connections requiring tiling being made. The factory at Owensboro is running steadily.

The new building of the Y. M. C. A., which it is believed will be erected as the result of a campaign now in progress, will cost about \$300,000.00, and about \$50,000.00 more will be spent for the buildings to be erected for the railroad and the colored departments. The structure will be one of the best of the kind in the country and will go up within the next year. Building supply men are looking forward to a good deal of business to result from its construction.

The construction of the Caldwell building, a 15-story office structure to be erected at Fifth and Jefferson streets, has been delayed because of the illness of members of the estate which is to put it up. It had been thought that work would begin in the next few months, but it appears that nothing will be done until next spring.

The Barbourville (Ky.) Brick & Tile Company is preparing to double the capacity of its present plant, and within the next two months will install new equipment.

Larue county citizens, according to reports from Hodgenville, are considering the erection of a tiling plant.



SEWER PIPE DISTRIBUTORS.

The Association Held Its Meeting and Elected Officers at New York Show.

New York, Dec. 15.—One of the side issues of the New York Cement Show was the annual meeting of the Sewer Pipe Distributors' Association, which met at the Hotel Knickerbocker. Its courteous secretary-treasurer, J. C. Adams, of Pittsburg, informs us that the association is in a prosperous condition, having plenty of funds in the treasury and that prosperity is courted for the coming year.

The election of officers resulted in a re-election as follows: Executive Committee, James G. Lincoln, president, Boston, Mass.; E. S. Walton, vice-president, Youngstown, O.; J. C. Adams, secretary-treasurer, Pittsburg, Pa.; Arthur N. Pierson, New York, N. Y.; Charles C. Bye, Wilmington, Del.; A. E. Bradshaw, Indianapolis, Ind.; W. W. Coney, Cincinnati, O.



UNIVERSAL TURRET NOZZLE OPERATING IN PLANT OF CHICAGO SEWER PIPE CO., BRAZIL, IND.

Board of Directors: C. H. Classen, Maryland Lime & Cement Company, Baltimore, Md.; J. C. Adams, D. J. Kennedy Company, Pittsburg, Pa.; E. S. Walton, The Youngstown Ice Company, Youngstown, O.; G. B. Raymond, G. B. Raymond & Co., New York, N. Y.; E. W. Lewis, David W. Lewis Co., Boston, Mass.; W. W. Coney, The Moores-Coney Company, Cincinnati, O.; Arthur N. Pierson, Arthur N. Pierson & Co., New York, N. Y.; James G. Lincoln, Waldo Brothers, Boston, Mass.; Luther Keller, Scranton, Pa.

The following members were in attendance at the meeting or represented by proxy:

W. B. Abbey, Newark, N. J.; Armstrong & Fleischman, Dunkirk, N. Y.; Fred Bowden, Newark, N. J.; E. Buhler, New York City; Bray Lukens, Buffalo, N. Y.; Campbell-Morrell Company, Passaic, N. J.; Crescent Supply Company, Marietta, O.; Cleveland Builders' Supply Company, Cleveland, O.; Contractors' Supply Company, New York; J. P. Duffy Company, New York; Glassford & Dodd, New York; Huston Brothers Company, Pittsburg, Pa.; Indianapolis Motor and Fuel Company, Indianapolis, Ind.; Luther Keller, Scranton, Pa.; D. J. Kennedy Company, Pittsburg, Pa.; H. Wales Lines Company, Meriden, Conn.; D. W. Lewis Company, Boston, Mass.; C. H. Little Company, Detroit, Mich.; J. Parry Lukens, Philadelphia, Pa.; Moores, Coney Company, Cincinnati, O.; Thos. S. Moran, New York; Maryland Lime and Cement Company, Baltimore, Md.; Warner Miller Company, New Haven, Conn.; Warner, Moore & Co., Richmond, Va.; George N. McAlarney, Wilkes-Barre, Pa.; National Builders' Supply Company, Baltimore,

Pa.; Arthur N. Pierson, New York; Thos. Robinson Company, Philadelphia, Pa.; George B. Raymond & Co., New York; Sitterding-Carneal-Davis Company, Richmond, Va.; Tompkins Brothers, Newark, N. J.; Waldo Brothers, Boston, Mass.; Charles Warner Company, Wilmington, Del., and the Youngstown Ice Company, Youngstown, O. Md.; H. E. Ogden & Sons Company, Newark, N. J.; Patterson Coal and Supply Company, Pittsburg,

UNIVERSAL NOZZLE USED IN BRAZIL PLANT.

Brazil, Ind., Dec. 16.—An Universal Turret Nozzle, manufactured by the Universal Turret Nozzle Company, 502 Commercial Club Building, Indianapolis, Ind., was recently installed at the plant of the Chicago Sewer Pipe Company.

The company uses the nozzle for stripping the clay at its plant here. The peculiar conditions here, together with the nature of the material moved, makes this nozzle especially adapted to this work. Heretofore the company moved this clay in wheelbarrows. The nozzle proved very satisfactory. Shale brick manufacturers are pricking up their ears in regard to the use of this nozzle where stripping has to be done, as by its use both time and money are saved.

ILLINOIS CLAY NEWS.

Springfield, Ill., Dec. 21.—The Sheldon Brick Company, Urbana, is making \$25,000.00 improvements, adding an improved dryer, rebuilding kilns and rearranging switching tracks for the receipt of clay which will be shipped from its recently purchased beds near Danville.

Arthur E. Williams, formerly at the University of Illinois, is now superintendent of the Monmouth Brick & Tile Company at Monmouth.

R. L. Mernagh, founder of and president and manager of the Mt. Vernon Press Brick Company of Mt. Vernon, Ill., since 1903, has sold his stock to G. T. Ham and A. V. Smith.

Rumor has it that the clay fields near Coal City, Ill., may be utilized.

Hewson Townill & Sons, Plainfield, Ill., will install a new steam shovel to remove the clay from the beds next season. This concern, in operation six years, is doing a big tile business and the force will be increased the coming year. Three to fifteen inch drains are specialties.

The completion of the new buildings of the Illinois Electric Porcelain Company at Macomb was an event of the month. The machinery was installed and the concrete floors laid. C. M. Kenney, of East Liverpool, Ohio, is superintendent and is an experienced man in all branches of ceramics. C. W. Ketron is manager.

Dealing in clay products is one of the objects of the Industrial Stone Company of Chicago, which was incorporated with a capital stock of \$30,000.00.

King Brothers, brick manufacturers, of Colchester, Ill., expect to have their plant arranged before next year so that they can run all winter. The plant has closed until spring, but with plenty of brick on hand to fill all orders.

The Midland Terra Cotta Company, of Chicago, was incorporated with a capital stock of \$30,000.00 to do a general contracting, constructing and decorative work and to manufacture and deal in clay products. The incorporators are Herschel V. Shepherd, Howard W. Lewis and Walter E. Shepard.

G. F. Martin, of Olney, representing Southern Illinois financiers, has leased ten acres of shale beds on the O. M. Reeves farm adjoining Grayville, Ill., and has options on further holdings. New buildings will be erected and machinery, it is said, already has been ordered which will give the plant a capacity of 40,000 paving blocks a day, together with other styles of brick.

William S. Chamberlain, 44 years old, a member of the firm of P. G. Keese & Chamberlain Brothers, brick manufacturers of Litchfield, died November 22 at his home in that city. His wife and four children survive him.

The Galesburg City Council has ordered an ordinance drawn providing for the inspection of all brick used in paving work. The measure was ordered at the request of the Trades Assembly.

Purchasing, constructing and maintenance of sewerage systems in Laporte, Ia., is the object of the Commercial Sewer Company, which has been incorporated with a capital stock of \$6,000.00. S. J. Tedford is president and H. B. Lizer secretary-treasurer.

Willard H. McBride, aged 40, district superintendent of the Robinson Clay Products Company, Canal Dover, O., and one of the most prominent men in the clay industry in Ohio, died here recently from rupture by a fall from a 12-foot trestle. McBride had been with the Robinson Company there fifteen years.

CEMENT

SPECIAL PORTLAND CEMENTS.

The great and dignified cement industry has reached a point in its progress where a new departure has been taken, namely, the production of special Portland cements. A few years ago, two or three different brands of white Portland cement were introduced and have since become a commercial commodity. To-day white Portland cements are indispensable. The development of the art feature in the treatment of plastic exteriors and manufactured stone both for exterior and interior demand an ever growing supply of white Portland cement, even at the high price which has ruled for this commodity up to the present time.

At the New York Cement Show the other day, a new type of Portland cement was on exhibition, which was claimed to be identical in all other respects to the standard Portland with the exception that it has the quality of almost instantaneous initial setting. This feature was immensely interesting to all of those who have given consideration to the matter of modeling in concrete and molding ornate members of various kinds. In fact, the exhibit showed quite intricate statuary molded in a few moments from a cement mortar made with quick setting Portland cement. While this very exhibition was in progress, one spectator remarked that he would like to find a cement that would have a slower initial setting than any that he had yet been able to find, but failed to state the purpose for which he needed it.

These suggestions open a new chapter in the production of cement and indicate that there is a demand for special cements for special purposes which one mill or one locality may be able to make more advantageously than another, and which might go a long way in the direction of solving the very difficulties that the association of cement manufacturers always has to confront it, namely, that there is too much of one kind of cement made in one section, and it is difficult to keep the equilibrium of distribution upon a parity. The manufacturers who have branched off into specialties will relieve the situation to that extent.

The work that comes back to us from the trade, and from the users of cement, clearly indicates that the study of the best technical minds in the business might well be devoted to developing new avenues in the cement industry where Portland cements for special uses, different from the ordinary cement, can be made and profitably marketed.

WEST COAST CEMENT NEWS.

San Francisco, Cal., Dec. 15.—Trade is settling down to the usual quiet winter run, and the various cement plants in the state are contracting their operations accordingly. While the demand for the year in the interior of California has been satisfactory, the feature of the year has been the heavy movement of California cement to Portland, Tacoma and Seattle. The demand at those points has been so great that only recently has the supply been equal to the demand, considerable foreign material having been imported in addition to that from California. Dealers in those cities are now laying in large stocks in anticipation of great activity next year and shipments are still quite large. Two cement plants are now operating in Northwestern Washington, and it is reported that Balfour, Guthrie & Co. are backing a project for a large plant to be built near Bellingham. The Ocean Barge & Tugboat Company is getting a large part of the transportation business from San Francisco, and last month chartered the bark "Annie Johnson" for this traffic.

The additions this winter to the Riverside, Cal., Portland Cement plant will include 8 ball mills and 10 tube mills.

Figures are now being taken on the improvements planned for the Davenport plant of the Santa Cruz Portland Cement Company.

The Copley Cement Manufacturing Company, dealers in Saylor's Portland Cement, wishes to announce the removal of its general sales office from Philadelphia to New York City, at Fifth Avenue and Twenty-third Street. All orders and correspondence should from this time be sent to the above address.

OFFICERS ELECTED

Association of American Portland Cement Manufacturers Meet at Opening of Cement Show.

New York, Dec. 14.—As a fitting prelude to the important public events in the cement trade the Association of American Portland Cement Manufacturers held their regular annual meeting at the Hotel Astor. A large majority of the men who have been most prominent in the development of cement making and cement using were in attendance, and their convocation properly opened and recognized all that followed.

Portland cement is today more than one of the indispensable commodities in the building trades, of universal application in many ways to the needs of all the people, but it also introduces a whole vista of practical improvement and carries with it a moral influence whose effect cannot be measured by the standards of the present generation. The blessings to humanity contained in the ease and economy with which really sanitary and fireproof homes are provided to take the place of disease-laden and dangerous domiciles cannot as yet be fully comprehended. The tremendous progress and achievements already recorded, by far exceeding comparison in all other lines of commercial endeavor, really amount to a mere introduction in comparison to that which is to



EDWARD M. HAGER, PRESIDENT A. A. P. C. M.

come in the immediate future. In fact the present occasion, embracing the cement show at Madison Square Garden, in conjunction with the annual convention of the National Association of Cement Users, opens a new chapter in cement history. For the first time the people who live in New York have the opportunity of studying at close range the details and methods of the most interesting and valuable improvement of the age.

Executive Session December 13.

The Association of Portland Cement Manufacturers were busy all day at the Hotel Astor. This meeting has been the largest and most enthusiastic in the history of the organization. Practically every motion that was put up for the association work of the future was passed unanimously. The sessions are all of an executive character and therefore none of the deliberations are made public. The election of officers resulted as follows: E. M. Hager, president; W. S. Mallory, vice-president; John B. Lober, treasurer. The following were elected to serve on the executive committee: R. W. Kelley, T. H. Dumarry, E. R. Ackerman, George E. Nicholson, A. H. Craney, Jr., George S. Bartlett, John N. Morron, Charles H. Zehnder, Bethune Duffield, R. W. Lesley, S. B. Newberry and Conrad Miller.

Percy H. Wilson, who has done such good work as secretary of the association, will continue in that capacity.

THE OPEN MEETINGS.

A wideopen invitation was extended to all those particularly interested in cement to attend the session of December 14, which as a matter of fact closed the deliberations of the meeting.

"The Cement Industry in Germany," being a summary of the transactions of the thirty-third convention of German Portland cement manufacturers, by Robert W. Lesley, was a most interesting and instructive paper. It gave a resume of all the technical, commercial, financial and other data that has been under study and discussion of our German brethren during the past year. The output of the German society had been reduced by half a million barrels, the present total being 29,600,000. This will probably be further reduced on account of heavy stocks and poor export demand. Appended to the paper are some miscellaneous foreign notes pertaining to cement manufacture in Belgium, New Zealand, the Philippine islands, in China, etc. These show the awakening of interest in cement and its uses in those remote parts of the world. The paper is an indispensable document for those who preserve cement literature, and is published in pamphlet form for the use of the members.

Edwin C. Eckel, the well-known authority on the technique of cement and other industries, read a very entertaining paper giving "A Comparison of the Portland Cement Industry With the Manufacture of Pig Iron."

A COMPARISON OF THE PORTLAND CEMENT INDUSTRY WITH THE MANUFACTURE OF PIG IRON.

(By Edwin C. Eckel.)

Mr. Frederick A. White, chairman of the Associated Portland Cement Manufacturers of England, in his annual address to his shareholders made on September 22, 1910, in connection with the statement that business conditions have been such that the cement plants of England could not operate to their full capacity, says: "For it is to be noted that the factor which works against our industry is not exactly, as is often predicated, overproduction. It is doubtful if over-production ever exists for long periods. Warehouses get full and production does decline with decreased demand, even though, as has been the case of late, the effort to sustain the demand depresses the price abnormally. But what we really suffer from is excess of capacity over current production when that is at a low level, because this prevents the natural rebound in prices when the demand revives. Each manufacturer puts, or can put, his surplus plant to work and not until this is employed, are sellers emboldened to stand firm and resist the pressure of customers, who threaten to divert their orders if concessions are refused." Judge E. V. Gary, chairman of the United States Steel Corporation, has expressed the same thought in connection with the steel industry. As is well known to all who are active in the cement industry of the United States, the same condition which has existed in England has maintained in this country since the panic of 1907. During 1908, of the total annual capacity about 63 per cent was in operation; in 1909 about 67 per cent, and it is estimated for the year 1910 it will be about 75 per cent.

Naturally, this problem of over capacity has received much study and efforts have been made to solve it along several lines with indifferent results, so that the average selling price, during the past couple of years, has been the lowest ever known in our industry.

While it is true that the demand for cement has increased every year without any exception, our shipments are getting so large (estimated at 73,000,000 barrels for 1910) there must come a time when they will temporarily cease to increase, and in view of the uncertain conditions for 1911, the record for an annual increase may be broken. Many business observers feel that until the decisions in the Standard Oil and American Tobacco cases are rendered by the Supreme Court of the United States, that nearly all lines of business will have to go slowly. If I am correctly informed, these cases will be argued in January, 1911, and the decisions may be rendered anywhere from three to twelve months later, but assuming that they are given by June 1 next, and are of such a character that they are favorable to business conditions, it will take an appreciable time for business to respond to the more favorable conditions, and it can hardly be expected that the railroads and other large users of cement will be able to make the necessary plans and financial arrangements to enable them to largely increase their construction work during the latter half of 1911. With the recent decided falling off in building permits and the recent change in the political situation, it would seem prudent to assume that for the year 1911 the consumption will not increase over that of 1910 any more than the capacity of the new plants which will be put into operation during that year, so that relatively all the plants will be about in the same position in relation to the maximum capacity as they are this year.

During 1906, when there was more demand for cement than the mills could supply, every plant ran to the maximum capacity, and on account of the lack of sufficient stockhouses to store the full output of the mills during the winter season when shipments are light, the lack of sufficient capital by some companies to finance very large stocks of cement, and the usual breakdowns incident to any industry that operates twenty-four hours every day, the plants averaged in operation only 83 per cent of the possible annual operating time.

If we assume that during 1911 we operate about 75 per cent of the possible operating time, same as we have during 1910, and that the maximum percentage we could operate is 83 per cent, there would seem to be a surplus capacity of about 8 per cent and the question is, how can we dispose of it?

Gentlemen's agreements are illegal and not effective. Some manufacturers believe that it is legal to maintain prices under patents, while others do not, so united action along this line seems impractical. If plants are shut down for a period of a month or more they are under the additional burden of shutting down and starting up expense, besides the breaking up of their manufacturing organization, and the hardship to their employees and families when they are laid off during the winter, and also the added general expense for those employees who are carried during the shut-down period, all of which makes it a serious problem, and I am now going to give you what seems to me to be a perfectly normal solution of it.

All cement plants of which I have knowledge run their kilns twenty-four hours per day seven days each week, and with very few exceptions they operate all departments on Sunday. It has for many years been a tradition in the cement industry that the kilns must be kept in continuous operation, for the reason that if the heat was cut off the linings of the kilns would become damaged and the average daily output decrease, and so, as far as I know, all cement kilns operate on Sundays.

At the plant of the Edison Portland Cement Co. for the past eighteen weeks the entire plant, including the kilns, has ceased operations every Saturday at 6:00 p. m., and has resumed at 7:00 a. m. Monday morning, and during the months this year when the kilns were operated seven days each week, the average output per kiln was 654 barrels per day. Since the Sunday operations have ceased the output has been as follows:

August—Average daily output per kiln.....667 bbls.
September—Average daily output per kiln.....677 bbls.
October—Average daily output per kiln.....680 bbls.
November—Average daily output per kiln.....691 bbls.

and there has been no trouble with the lining, due to the fact that the kilns are stopped with the full load and about every four hours from Saturday night until Monday morning, each kiln is given a half revolution, which transfers the heated material to the other side of the kiln lining, and so prevents it from cooling off too rapidly and becoming damaged. The increased output I believe is due to two reasons. The men in charge of the kilns, on account of their rest, are in condition to do more efficient work, and because we further believe the output of our kilns depends on the area of the inside cross section at its smallest point. When the kilns are down on Sunday, one gang of men, numbering from three to five, cut off the lining at its highest points and increase the area of cross section, and the average output is increased. This operation cannot be done when the kilns are in continuous operation.

I have corresponded with many of the largest plants in other lines, who use kilns and furnaces of various types, and find that outside of blast furnaces, which produce pig iron, that none of them, such as open hearth furnaces, puddling furnaces, copper furnaces, cupolas, heating furnaces, brass furnaces, air furnaces, operate on Sunday, although in some cases light heat is kept on the furnaces over Sunday. Kilns for the manufacture of brick and similar material are kept under heat on Sunday, but are seldom loaded and unloaded on that day. Therefore, if all these allied lines of manufacture can successfully operate their kilns and furnaces only six days per week, why is it necessary, in view of the results obtained at the Edison plant, to operate cement kilns for seven days each week, and if an arrangement could be made by which every cement plant in the United States would discontinue Sunday operations, the problem of overcapacity for 1911 would be solved, and over thirty thousand employees would have their rest on Sunday and be in a position to do much more efficient work the other six days. While there can be no argument as to the moral right of these thirty thousand employees to have their Sundays for their own uses, I am nevertheless considering the question almost entirely from a practical standpoint to show that it is feasible to give them one day's rest in seven.

Now what as to the legal aspect of an agreement to close down on Sundays? I am advised by what I consider good legal authority, as follows: "In my opinion

an agreement among the various cement manufacturers to close down their plants on Sundays would not be a violation of the Sherman anti-trust law," and it would hardly seem probable that the government would undertake any action which might deprive over thirty thousand employees of their Sundays.

With every good thing there are usually some points which must be guarded, and in this case care must be observed as to the Sunday repairs, as it has been our experience that many small repairs that could be made during the week are left for Sunday, which necessitates calling out quite a repair gang. We now make it a rule that only emergency repair work is done on Sunday, all other repairs being done during the operating days. This is necessary if the operating cost is to be kept down to the minimum, and it is my judgment that in most plants the annual average manufacturing cost per barrel of cement will be no greater under the six days schedule than under the seven days plan with the winter shut down expenses added.

In suggesting such a radical change in existing practice, I do not for one moment expect that the manufacturers will accept my conclusions without question, and all that I ask is, in fact, I urge it to the utmost, that every manufacturer will try this experiment for himself. If he does not care to try it on all his kilns at first, let him try it on one and watch the results carefully. There are two facts, however, which should be remembered, and the first is that all men are largely creatures of habit and nearly all of us object to changing existing conditions of long standing, and if the first test is not fully satisfactory, try it the second and third time, and I fully believe the same results can be obtained generally as have been accomplished at the Edison plant. The second fact is, that in every plant individual kilns are shut down for changes and repairs and the heat taken off from time to time, and when these repairs are completed the heat is put on and the kiln produces clinker same as before. All I am suggesting is that you shut down all your kilns at a regular time every week, instead of individual kilns at irregular times.

If this plan were adopted by all the plants, I believe it would solve the problem of over capacity, give continuous work to our employees, who would be more efficient and better satisfied, less capital would be tied up in large stocks of cement, and probably better average selling prices could be obtained. Surely such a condition is much to be desired, so that I again urge you all to very carefully consider this suggestion and to try it out.

Oscar Pfeiffer explained the "Use and Results of the Air Separator as Applied to Cement," which contained quite a little new matter for the consideration of the men in charge of the practical operation of the cement plants.

J. D. Kenyon delivered his lecture on "Salesmanship," which was well received and highly enjoyed as a well-rounded discourse upon the all-important feature of modern commercial enterprise.

Informal luncheon was served and the topics of the various papers discussed ad libitum in the pleasant social way that has grown up in the association during recent meetings.

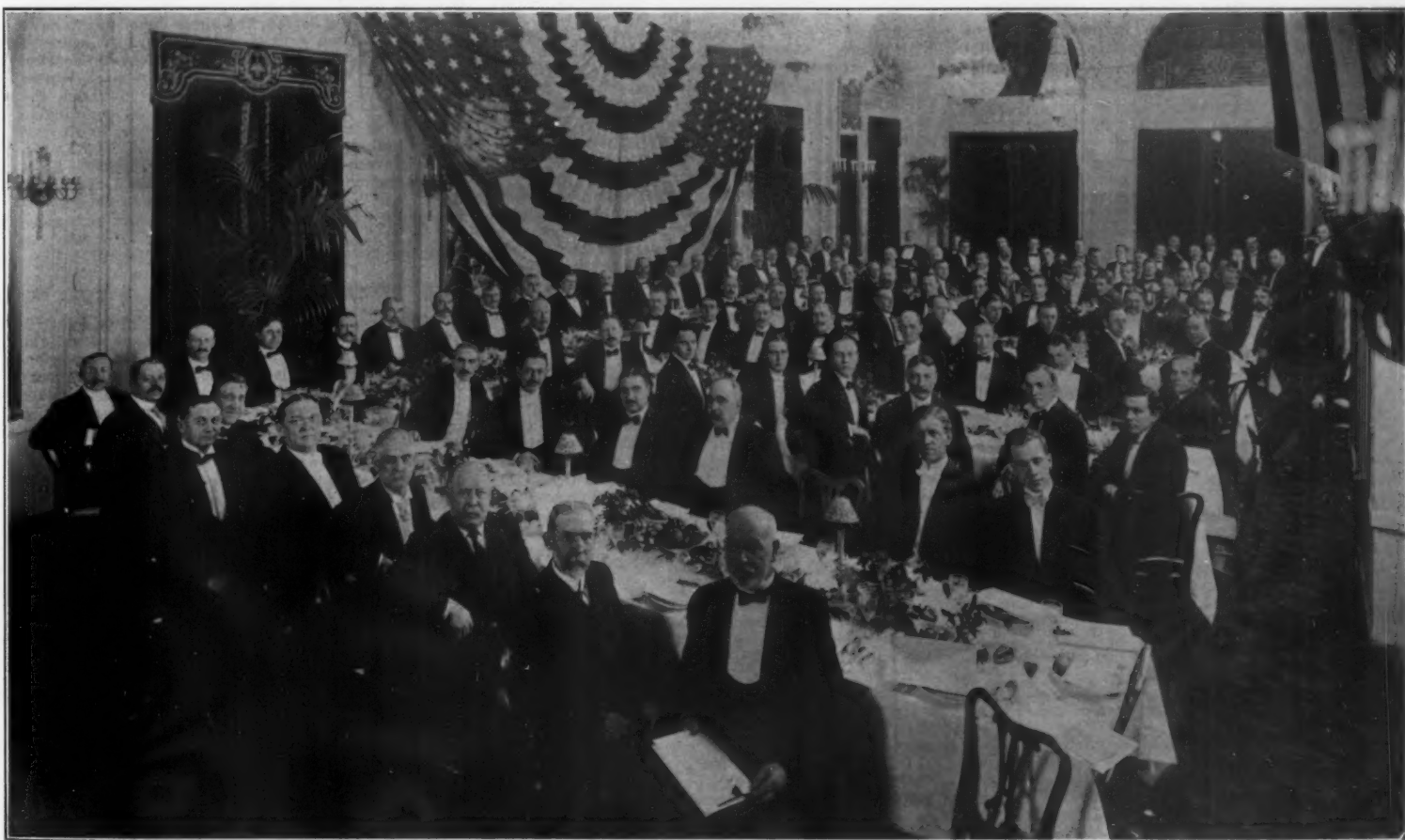
THE BANQUET, DECEMBER 13.

The eighth annual dinner of the Association of Portland Cement Manufacturers was a very brilliant affair. The dining room on the sixth floor of the Hotel Astor was appropriately decorated for the purpose.

E. M. Hagar, the newly elected president, was the toastmaster and presided in his usual happy manner. His introductions were both clever and witty. Mr. Hagar is nothing if not versatile and shines with equal brilliancy whether he is presiding over the destinies of the cement industry, opening the greatest cement show on earth or handing out the bouquets at a banquet. The list of speakers was long and the speeches were of unusual length.

The Attendance.

H. W. Barrett, W. E. Calkins, W. R. Corbett, A. L. Beck, J. A. Meyers, J. W. Shove, G. W. Hackett, T. A. Courtenay, C. Warner, H. Struckman, G. F. Bayle, A. W. Paige, D. McCool, R. W. Kelley, G. H. Dumar, E. R. Ackerman, George E. Nicholson, A. H. Craney, Jr., George S. Bartlett, W. S. Mallory, E. M. Hagar, J. B. Lober, J. R. Morron, C. H. Zehnder, Bethune Duffield, R. W. Lesley, S. B. Newberry, E. C. Eckel, J. W. Kittrell, W. H. Harding, C. H. Robinson, Harry B. Warner, W. W. Bayle, T. C. Printy, J. B. John, E. Meyer, J. H. Love, J. Warner, S. Y. Heebner, B. J. Weil, J. W. Dettweiler, E. E. Champion, G. Williams, George W. De Smet, A. E. Stanger, C. H. Hershe, J. Miller, J. W. Fuller, C. G. Stratton, W. B. Newberry, T. H. Dunsmore, R. S. Weaver, F. A. Walter, T. S. Young, W. B. Kugler, N. D. Fraser, J. U. C. McDaniel, W. R. Dunn, T. G. Barr, W. D. Lober, W. H. Wing, Albert Moyer, Maurice Metcalf, Percy H. Wilson, A. R. Sinclair, F. W. Kelley, J. F. Bush, Adam Beck, W. A. Holman, J. P. Beck, W. King, R. E. Griffith, J. Brobston, W. N. Beach, J. W. Aker, H. S. Hartsell, S. C. Hawk, R. J. Haw, H. M. Fetter, J. C. Ford, R. R. Bonner, J. A. Miller, R. E. Bonner, W. H. Hartwell, J. C. Van Doorn, L. G. Sprague, A. W. Nash, J. R. Hanahan, A. Bates, W. M. Kinney, Amos Kendall, P. Berry, B. H. Rader, O. G. Johnson, L. V. Clark, F. W. Douglas, J. W. Alker, W. Dickinson, C. H. Breerwood, J. P. Twombly, G. Wilson, L. R. Ferguson, R. W. Hillis, C. H. Ramsey, B. E. Allison, F. Stager, B. F. Affleck and Charles Camm.



ANNUAL DINNER OF THE CEMENT MANUFACTURERS.

THE RELATION OF THE LIME CONTENT OF CEMENT TO THE DURABILITY OF CONCRETE.

(Paper Read at Seventh Annual Convention of National Cement Users' Association.)

BY H. S. SPACKMAN.

The purpose of this paper is to bring to your attention the discussion on the effect of the high lime content of cement on the durability of concrete construction under special conditions, which has occupied more or less the attention of technical societies and the columns of the technical press, especially in Europe, during the past few years.

This paper is not to be interpreted as questioning the advisability of the use of concrete, or distorted into a prophecy of the failure in the near future of the numerous concrete constructions in existence, for concrete, when properly prepared, is one of the best and most durable of structural materials.

It is desired, however, to emphasize the fact that its durability is not due to the Portland cement content, but to the care in the selection of the aggregate, the proportioning of same, and the workmanship in mixing and placing the concrete. The making of concrete is a manufacturing process, in which the cement is only one of the several raw materials required, and forms but a small proportion of the finished product. Such being the case, the durability and strength of the finished material depends on the user, and not on the cement manufacturer; and this will continue to be the case until there has been developed a hydraulic cementing material, which will alone be capable of resisting the destructive action of water containing sulphates, or other injurious chemicals.

This discussion may be epitomized in the following statements:

1. All Portland cement is, by reason of its high lime content, subject to destructive attack, under conditions favorable to such action, not only from sea water but also from acidulous and other saline waters.
2. The resistance of concrete to the disintegrating effect of such waters depends largely upon the impermeability of the mass.
3. That it is essential to the durability of concrete construction under unfavorable conditions that there be developed a hydraulic cement having strength under mechanical test approaching that of Portland and free from the properties which render it liable to destruction by chemical action under such conditions.

Owing to the large use in Europe of cement in maritime construction, where the evil effect of the high lime content is accentuated by exposure to sea water, more thought has been given in Europe to this particular phase of the question than here, or than to the study of the destructive effect of ground waters, which is equally noticeable, and even more important. Enough work, however, has been done along these lines to show the danger of the use of high lime cements when the construction is to be subjected to waters containing sulphate of lime, which Bied, in his interesting paper, "Experiments on the Decomposition of Mortars by Sulphate Water," read at the Fifth Congress of the International Association for Testing Materials at Copenhagen in 1909, shows to be even more destructive in their effect than sea water.

The importance to all constructors of the fact that waters containing solutions of sulphate of lime exert a destructive influence on Portland cement concrete, becomes manifest when it is realized that the ground waters of our large cities generally contain considerable amounts of sulphuric acid, which, on contact with the cement, may dissolve the lime and form destructive solutions of sulphate of lime.

Bied states in the article referred to:

The decomposition of mortars, which are exposed to the action of the sea or of waters charged with sulphates, has for a long time already occupied the attention of engineers, and experiments have been multiplied in all quarters with the object of discovering some hydraulic binding material which would be free from liability to destruction.

Up to recent years attention has chiefly been concentrated on the injurious action of the sea-water, and although the destructive effect of sulphate of lime was not unknown, it was not as a rule taken into consideration. Having had to inquire into decomposition of mortars by sulphate of lime, observed in 1900, on the line leading from Linares to Algeria in Spain, and in 1902 on the line St. Giron-Folx, and at the same time in Algeria, we have been induced to submit this problem to a prolonged experimental investigation.

In our researches we have compared materials poor in alumina and aluminiferous mortars, highly calcareous mortars and some of high index.

The action of the diverse saline solutions which were employed is not altogether the same. It may in general

be assumed that the artificial sea-water is 10 or 15 times less active than a 12 per mille solution of magnesium sulphate. Yet certain artificial cements have been decomposed more rapidly in sea-water than in the solution of anhydrous magnesium sulphate.

The saturated solution of sulphate of calcium is at least as destructive as the 12 per mille solution of anhydrous magnesium sulphate, but its effect appears to be different, sometimes more energetic, sometimes less energetic than that of the magnesium sulphate solution of 12 per mille.

Water saturated with sulphate of lime appears to be the most active decomposing agent. Constructors must constantly be on the alert in this respect. In fact, waters saturated with calcium sulphate are sometimes met with far from any recognized occurrence of gypsum.

On the other hand, waters which at certain moments do not contain more than 0.1 or 0.2 gram of calcium sulphate may become saturated during periods of drought. In our laboratory and under the experimental conditions above indicated, we have not met with any slow or quick-setting cement, whatever its mode of manufacture and its chemical composition, which has resisted the action of this solution for six years.

Similar destructive effects of the ground water have been noted in the West, where the water is charged with a solution of alkaline salts.

Whether or not the same rule, the lower the lime content the more durable the cement, will hold good for cements above ground, exposed only to the influences of the atmosphere and the moisture and gases contained therein, I am unable to say, as I cannot recall any careful and systematic investigation and study of the comparative durability and strength over long time periods, where low lime and high lime cement concretes were tested under like conditions, that is, in air, in a dry state under the conditions similar to those occurring in the interior of reinforced concrete construction, and also exposed to alternate wetting and drying, as would be the case of the concrete on the exterior of reinforced concrete construction. Such an investigation extending over a period of several years where a number of full-sized beams were tested at yearly intervals, the test pieces being made from the same aggregate with various cements, would be of great value.

It is known, however, that the briquettes of Portland cement stored in air show greater variation and more often retrogression of strength and disintegration than companion comparison sets or briquettes stored in water. It is also known that Portland cement clinker will decrepitate with time when exposed to ordinary atmospheric influences, and even in sealed air-tight bottles, and that the higher the percentage of lime in the clinker the more marked is this disintegration. It is also known that only a portion of Portland cement ever hydrates or takes part in the hardening. It is, therefore, not unreasonable to suppose that this unacted upon clinker in the cement will disintegrate with time. Whether the disintegration of briquettes stored in air, or the loss in strength, be due in part to the decrepitation of the coarser particles of cement as above indicated or not, is at present a matter of speculation, but it would seem, in view of the well-known action of clinker that it would be desirable to have as little inert material in the cement as possible.

That Portland cement is not of itself sufficient under ordinary conditions to insure impermeability in concrete is evidenced by the rapidly growing use of waterproofing compounds, either mixed with the cement or applied as a surface coating, and it would seem that there should be an endeavor, either by improvement in the quality of the cement used or in the workmanship and proportioning of the concrete, to make an impervious material, as it is unquestioned by all investigators that the resistance of concrete construction to the attack of acidulous or saline waters, or other destructive influences, is entirely a function of its permeability.

Are constructors justified in the face of these facts in confining themselves almost entirely to the use of Portland cement to the exclusion of the lower lime hydraulic cements, as it is evident from the report of the Geological Survey covering the cement industry for 1909, which shows that there was produced and used in the United States during 1909 62,508,461 barrels of Portland cement, against the production of 1,687,925 barrels of hydraulic cements of all other classes.

The impression must not be gained from this paper that the destructive action is quite general and that Portland cement is, therefore, unsuited for use under such conditions. As evidence that concrete can be successfully used under adverse conditions, we have properly built structures that have been subjected to such conditions for many years.

It is, however, desired to emphasize that great care must be taken in the use of Portland cement. It is evident that the ability of Portland cement to resist such action can be very much improved, and it was for the purpose of directing attention to this fact, and suggesting that the subject be further investigated to determine whether perhaps some of the other classes of cement might not be more suitable for such use that this paper is written.

SEVENTH ANNUAL CEMENT SHOW OF IOWA ASSOCIATION.

Extensive plans for the seventh annual show of the Iowa Association of Cement Users are rapidly nearing completion. The show this year will be held at Cedar Rapids, Ia., January 10-13, 1911, inclusive. The seventh annual convention will also be in session at the same time as the show. The dealers and users of cement in Iowa have given such ready assistance when called upon to aid preparations for the show that the promoters are confident of a record-breaking attendance, and in all other ways a show that will wake up the people of Iowa to the realization that their state is keeping up with the general advance throughout the country and only needs help from its citizens to forge ahead more rapidly.

The program, as arranged thus far, has on it several speakers of prominence throughout the country. Arrangements have already been made to secure the services of President Richard L. Humphrey, of the National Association, and Dean A. Marston, of the Iowa State College. The paper by Dean Marston will probably take up the cement tile question in all its different branches and also refute recent statements made as to the inefficiency of cement tile. The Iowa Highway Commission will furnish an illustrated lecture on bridge and culvert work. The question of street paving with cement will be taken up in detail by C. P. Chase, formerly city engineer of Clinton.

The show is to be held in the Cedar Rapids Auditorium, and with its great floor space on the main, ground and balcony floors given over to exhibits, will present a striking demonstration of the uses of cement. A more complete story of this show appeared in the November issue of ROCK PRODUCTS.

OIL-CEMENT CONCRETE.

The 1910 report of James Wilson, Secretary of Agriculture, has been recently issued and states: "The Department of Agriculture has conducted important investigative work during the past year in the development of oil-cement concrete. Portland-Cement concrete is rapidly becoming a universal building material. It has been found during the laboratory investigations that it is possible to mingle mineral oils with concrete which is still wet and before it is laid or moulded in the forms, so that the material may be rendered absolutely waterproof. Several pieces of road surface have already been improved by oil-cement concrete. In addition to this a bridge surface has been constructed of this material in New Jersey, and these experiments have up to this time proved satisfactory. Oil-cement concrete is now being given a practical application on a series of new vaults at the United States Treasury. From the results already obtained, the experiments indicate that it would be practicable to use this material for floors, cellars, walls and other similar constructions."

This invention of mixing oil and cement to make waterproof concrete is the discovery of L. W. Page, director of the Federal Roads Bureau. Mr. Page is not going to patent the discovery in his own name but in that of the public of the United States, so that the invention will be of public good.

THE WESTERN STATES FENCE & TILE CO.

Paris, Ill., Dec. 18.—The Western States Fence & Tile Company recently bought the plant of the Paris Glass Company and commenced manufacturing concrete tile last September. Its equipment consists of one National Tile machine which makes 12" to 36" tile, one McCracken machine which makes 4" to 12" tile. The company contemplates purchasing another National machine immediately increasing its capacity from 6,000 to 8,000 feet of tile a day. The company at present is behind in its orders. Three weeks ago it was awarded the drainage contract at Allerton, Ill., for 8,600 feet of 18" tile. Also the drainage contract in drainage district No. 8, town of Embarrass, Edgar County, Ill., for 5,000 feet of tile 30", 3,000 feet of tile 37", 500 feet of tile 24", 500 feet of tile 22", 500 feet of tile 20", 500 feet of tile 18", 500 feet of tile 16", 600 feet of tile 15". Also another contract in Union Drainage district No. 1, towns of Embarrass and Kansas, Edgar County, Ill., for 2,000 feet of tile 30", 4,500 feet of tile 27", 1,500 feet of tile 24", 2,500 feet of tile 22", 3,200 feet of tile 20", and 4,100 feet of tile 18". For a new concern it seems to be growing some.

The George Rackle & Sons' Company announce their removal to their new factory buildings at Newburg, O. They are located on the Pennsylvania Railroad at that place. They will now have a capacity of 1,000 feet of Artstone trim and 3,000 concrete blocks per day. Their offices will be located at Cleveland, O., in suite 530 Osborn Building.

CHICAGO CEMENT NEWS.

There was a slackening in general in trade among the cement manufacturers this month, but still prices are good and they all have hopes of a much better year in 1911 than the one just ended. A number of the cement dealers were present at the cement show just closed and came away with any grouches they may have had dispelled, especially those dealers whose companies were represented with a booth at the show.

The Alpha Portland Cement Company, 204 Dearborn street, report business good for this time of the year. With them collections have been very good this month. As is usual during the cold weather they are having a slight let-down. D. Kiechter, their Chicago manager, is on a three weeks' business trip through Ohio and the surrounding country. He expects to return in a few days to be on hand for the Christmas festivities. The Alpha Company are getting orders right along, and though none of them are very large, business is in good shape.

Edward L. Cox, of the German-American Portland Cement Company, 204 Dearborn street, said the season was closed with them. Collections are very good with them now. The prices are keeping well up to the average. There is a bright outlook for next year's business. Mr. Cox said they were contemplating a general increase and improvement of their plant to more readily handle the business they look for next season.

Gold Williams, Chicago representative of the Marquette Portland Cement Company, 204 Dearborn street, said: "We are busy now on big work that has been hanging over since fall. Prices are better this month than they were in December, 1909. We are preparing for a big business next year, and for this are improving our plant at La Salle, Ill. Our mills are still running full blast filling orders." Mr. Williams was an enthusiastic booster at the New York show. The Marquette Company did not have an exhibit, but he made up for that with his smiling presence.

Blaine S. Smith, of the Universal Portland Cement Company, 118 Adams street, reported business rather dull owing to the close of the season, as regulated by the weather. Even November was cold compared to last year and business was correspondingly slack. They are having pretty fair shipments on back work and a splendid outlook for 1911. Mr. Smith said: "If anything like the number of proposed large and small buildings materialize and the railroads do their share of buying, 1911 will be a record-breaking year with the trade. Prices have been good all year and remain satisfactory."

J. U. C. McDaniel, sales manager for the Chicago Portland Cement Company, 108 La Salle street, reported good prospects for next season, although business was a little slack this month. Collections are fair with them. The Chicago Portland Cement Company was well represented at the cement show, there being present from their office besides Mr. McDaniel, who is also secretary and treasurer of the Cement Products Exhibition Company, Norman D. Fraser, president of the Chicago Portland Cement Company and vice-president of the Cement Products Exhibition Company, and Mr. Crawford, the publicity manager of the Chicago Portland Cement Company.

George W. De Smet, dealer in Vulcanite Portland Cement and waterproofing at 138 Washington street, stated: "We have plenty of work on the boards, business is good in spite of the fact that severe weather has set in. Prices remain steady. We are working on a number of jobs. Business has been good all fall and has been better than during the corresponding time in 1909. I find the outlook for 1911 very encouraging."

John G. Evans, the Chicago representative of the Atlas Portland Cement Company, 138 Washington street, reported a let-down this month because of cold. "We have received a number of healthy inquiries," said Mr. Evans, "and the prospects for a good year in 1911 are very bright at this time."

INCREASE THEIR CAPACITY.

The new plant of the Golden State Portland Cement Company at Oro Grande, Cal., is now in operation and is turning out some of the best cement in Southern California. Their daily capacity now is cement to the value of \$1,000.00. Their chemist, Robert Willson, has made tests which show their product to be better than that used in the preliminary tests. The company will install a second kiln immediately. This will double their present capacity. The entire output of the plant has been contracted for the next five years by the Union Lime Company, of Los Angeles, Cal.

J. ROGERS MAXWELL.

Death of Foremost Cement Producer and Prominent Capitalist.—Other New York News.

New York, Dec. 15.—A meeting of the directors of the North American Portland Cement Company was held in this city on December 9. The session, which was kept secret in most of its details, and which lasted all day long, was known to have been called for the purpose, among other things, of considering advances in the price of cement. Although he is not a director in the North American Company, J. R. Morron, recently elected president of the Atlas Portland Cement Company by J. P. Morgan & Co., was present at the conference to give his advice on the question of prices. There was a division of opinion as to whether an advance at this time was advisable, with the result that for the present there is to be no change.

The rapidly increasing demand for cement to replace timber has been met by too great a supply in the opinion of many who wish to see the business show a larger margin of profit. A regulation of production will be aimed at by the North American Company so that prices will go up automatically.

It is declared that there is some excuse for higher prices now in the fact that the cost of the cotton sacks in which the cement is shipped has increased to practically 10 cents each.

J. Rogers Maxwell, until recently head of the cement industry in this country and at one time president of the New Jersey Central Railroad, died of apoplexy Sunday, December 11 at his home at 78 Eighth avenue, Brooklyn. Death came suddenly and unexpectedly, but his family with the exception of his son John R. Maxwell, Jr., was with him at the time.

Up to the first of November last, Mr. Maxwell was president of the Atlas Portland Cement Company; at that time he was succeeded by John R. Morron, of Chicago, formerly president of the Peter Cooper Glue Company, who was said to have been chosen by J. P. Morgan & Co., who, a short time before, became heavily interested in the Atlas Company.

This company has a contract with the government to supply cement to the Panama Canal, and has been delivering thousands of barrels a day for nearly two years. With rapid expansion taxing even its great resources the company sought and received backing from J. P. Morgan & Co. Soon afterward Mr. Maxwell resigned from the presidency, giving ill health as his reason. He was operated upon in the Long Island College Hospital last August for some internal trouble but quickly passed the crisis and recovered.

J. Rogers Maxwell was president of the Board of Regents of the Long Island College Hospital, and like his brother, Henry M. Maxwell, now deceased, gave large sums to the institution. He was for many years prominent in the anthracite carrying railroad. He was president and later chairman of the executive committee of the Central Railroad of New Jersey, of which he was one of the largest stockholders. He was, besides, director in the Lackawanna and the Delaware and Hudson railways. Also, he was a director of Manning, Maxwell & Moore, one of the largest dealers in railroad supplies in the country, of the Mutual Life Insurance Company, the Guaranty Trust Company, and several banks. He was a member of the New York Stock Exchange, having formed in 1883 the brokerage firm of Maxwell & Graves, which dissolved three years ago. A devoted sportsman, besides, he was a member of the New York and the Larchmont Yacht Clubs.

The cement business in New York has been very quiet for the month just past. William C. Morton, of the Consolidated Rosendale Cement Company, who is in a position to know the situation in all its angles, said:

"Business in this line has been almost at a standstill since the middle of November. While the aggregate of sales isn't so bad owing to the large amount of work being finished up, there was almost no new business. The snow storms of the last two weeks have completely tied up deliveries for several days at a time, and even the dealers best equipped with transfer facilities made no attempt to deliver their product for several days after each storm. When you realize that three destructive fires gained headway in the wholesale district in one day because the fire companies could not make quick runs, it can be understood that wagons heavily laden with cement could not hope to get around."

This story was thoroughly borne out by O. F. Perry, of the Rockland Lockport Cement Company.

"The month has been very dull," said Mr. Perry. "Of course, we expect to see things quiet down at this season, because cold weather puts a damper on building operations, and because this is the time of year to take inventories and settle up accounts. But anything so quiet as this after the several months of good business preceding was hardly to be expected. I ascribe much of the dullness to the fact that collections are so slow. Not only are we ourselves unable to get in what is owing to us, but the builders and others of our customers are finding it hard to realize on their accounts, and that makes them reluctant to push forward with new operations. I don't look for a real wake-up until March."

ST. LOUIS CEMENT NEWS.

St. Louis, Dec. 14.—It is probably within the bounds of strict truth to affirm that the men in charge of the various departments of the business of the Union Sand & Material Company, both in St. Louis and at the other cities (Memphis, Cairo, etc.) where the company maintains branches, are as able as the coin of the realm can command. The absence of A. H. Craney, sales manager of the company's cement department, at New York City where he is looking around at the big show and receiving the glad hand, renders it possible to strew a few bouquets in his path and wish him a "happy new year" in advance.

Each time the ROCK PRODUCTS man calls on Charles McCormick he finds that he has to wait longer for an interview—there are other folks who get the start of him! Any one who knows Mr. McCormick is aware that he relishes perpetrating a sly joke. Putting on a severe expression he confronted his caller thusly: "Tell the editor I'm mad with him!" but in reply to a puzzled and inquiring look, he added, "I wanted the size of my advertisement doubled up, and, furthermore, let me tell you we got more responses from our advertisement in ROCK PRODUCTS than we did in case of any other trade journal." Mr. McCormick added that on the occasion of the ROCK PRODUCTS representative's next call he would be in a position to divulge some particulars regarding some big deals for the company's waterproof Portland Cement which are now pending.

The Continental Portland Cement Company state that except from the South they are not booking much new business at present, and really under present conditions and the wintry weather in this section, would not be warranted in looking for orders for cement for prompt delivery, while as to contracts for future shipment it is no use to make much effort in that direction until after the turn of the year. Taking the year's trade into consideration, a quite satisfactory volume of business had been done, taking into consideration that it is a new company and that the present year was the first one in which the completed plant had been in shape to be driven hard to fill orders.

BUFFALO CEMENT NEWS.

Buffalo, N. Y., Dec. 15.—In an interview with your representative, Mr. Shoemaker, of the Buffalo Cement Company, Ltd., said: "Trade has been very good indeed with us for the entire year. Of course in the approach of winter, there has been a gradual falling off. Already, however, we have some valuable inquiries coming in that augurs well for our 1911 business. In the year 1910 this firm records the best business they have ever had since we have been in business, and our outlook for 1911 is most hopeful. We intend to increase our contracts on cut stone work and gradually it is possible that we shall in time dispose of our cement trade altogether. We believe the cut stone to be most profitable. We find that our orders are coming in rapidly for future work along this line. Our secretary, Leslie Bennett, is in New York at the present time attending the cement convention. The year of 1911, it is expected, will be a banner one. There are many new roads already planned throughout Erie county."

A. W. Thorn, the president of the Thorn Cement Company, is at present in New York attending the cement convention. Mr. Tuthill, of this firm, says that 1910 has been the best in the history of this concern, while the outlook for 1911 is most encouraging. Notwithstanding the fact that it is usual for trade at this time of year to diminish, it has been very good for this firm and beyond expectation.

M. A. Reeb, of Reeb & Co., is in New York.

Good Roads Meeting at Indianapolis

Great Enthusiasm at Seventh Annual Convention of American Road Builders' Association
—Energetic Campaign of National Importance Started.

Indianapolis, Ind., Dec. 10.—More enthusiasm and a greater attendance to the seventh annual convention of the American Road Builders' Association, which held its sessions at the German House, Indianapolis, Ind., December 6, 7, 8 and 9, marked a mile post in the history of the good roads movement which will not be soon forgotten, and its influence for greater achievement and accomplishment in this direction will be permanently felt in the future.

The good roads congress was made up of and represented by a body of able men, whose object is of the greatest material interest and worth to the entire country. These men represented forty states and 92 per cent of the population of the United States. The total number of names enrolled on the registry books of the association, attending the convention, was, in round numbers, 1,500, the largest attendance ever recorded at any good roads convention held in the past.

The Good Roads Congress, just adjourned here, has discussed in all of its phases the question, "What constitutes good roads; of what material shall they be constructed; who shall contribute to their building," and pointed the way how to get them. It was a matter of congratulation and hope that its meeting will still further awaken the people to the importance of building good roads throughout the country and leave its impress upon the state of Indiana forcibly and lasting.

The Association's History.

The American Road Builders' Association was organized in 1902, for the purpose of stimulating interest in and promoting highway improvement in every part of the United States. Originally it was called the American Road Makers. The name has since been changed and a charter taken out under the laws of the state of New York.

It has five classes of members: Active, honorary, associate, contributing and life. The organization is national in its scope, and while its officers and directors are chiefly the men at the head of state highway departments, its membership includes highway officials, engineers, contractors, city engineers, street commissioners, members of boards of public works, members of farmers' and automobile organizations and leading public men in the United States and Canada, who take special interest in the subject and have identified themselves with the good roads movement. The association has held successful conventions at Detroit, Port Huron, Hartford, Pittsburgh and Columbus, all of which were well attended, but the convention just held here in Indianapolis overtopped one and all in attendance, in enthusiasm and in practical discussion of good roads.

TUESDAY MORNING'S SESSION.

Most of the morning was spent in enrolling and making the delegates feel at home, and in putting the finishing touches on the exhibits of materials and machinery in the large hall of the German House.

The first session of the American Good Roads Congress was called to order at 11 a. m. by the president, James H. MacDonald.

After the invocation by the Rev. M. L. Haines, pastor First Presbyterian Church, the delegates were officially welcomed by Governor Marshall for the state, Mayor Shank for the city and C. A. Kenyon for the Indiana Good Roads Association.

William Fortune was presented to the convention by President MacDonald as the temporary chairman of the convention to serve during the presentation of the address of welcome. He briefly reviewed the Indiana situation and presented Governor Thomas R. Marshall.

Governor Marshall Talks.

The Governor referred in opening to the invocation which had been pronounced by the Rev. M. L. Haines.

"This question of good roads is of vital moment, not only to all America," said the Governor, "but it has a direct bearing on the religious attitude of mind of some of our people. No man has been able to drive a team of mules or a yoke of oxen over some of the Indiana roads without pro-

fanity. It is true that good roads will tend to the uplift of the moral and religious sentiment of a community."

We have awakened to the fact that the state of Indiana has not been getting from her road tax dollar for dollar. You know that in this state the road tax may be worked out by the land owner and the railroad. I believe that there are many smaller municipalities in this state where, if the road tax and poll tax had been paid in cash in the last thirty years, and a competent man who knew how had been in charge, all of the streets might have been bricked or asphalted with the money that has been wasted.

"But there is an awakening in Indiana on this question of highways. I am convinced that the best interests of the people are to be conserved by a revision of the road laws and some system adopted that will mean a dollar's worth of tax produces a dollar's worth of road—a thing that has not been true in the past."

The Governor said that the deliberations of such a body as had gathered might be of the utmost advantage to the people at large, but he warned against the danger of selfish interests being allowed to thrust themselves into the movement. He said that so long as the question was considered from the standpoint of the interests of the whole people, nothing but good could result.

Mr. Kenyon reviewed the history of the Indiana Good Roads Association and assured the delegates to the convention that their presence was doubly welcome just at this time when Indiana was trying to solve the problem of how to get better roads.

President MacDonald Responds.

In responding to the welcome, James H. MacDonald, president of the American Road Builders' Association, the annual convention of which the congress also marks, asserted that the meeting would prove to be the most notable gathering in the interest of good roads that had ever been held in this country.

"We already have present more than have ever attended a first session before," he said, "and we have assurances that delegates will be present representing forty states and representing 92 per cent of the population of the United States."

After appointment of committees the convention adjourned to 2 p. m.

TUESDAY AFTERNOON'S SESSION.

President J. H. MacDonald at 2 p. m. called the session to order.

Report of Committee on Credentials was read.

"Of forty-two legislatures meeting this winter, many, not having already passed laws providing for state aid in building public roads, will consider or pass such laws and practically every one of these states will look first to the action taken by Indiana," declared J. E. Pennybacker, chief assistant in the office of public roads of the government. "Because of the influence this meeting will have in Indiana, the holding of this congress at just this time, in just this place, makes it the most important convention for the consideration of road building ever held in Indiana."

Only nine counties in Indiana, statistical reports show, are without an abundant supply of road building material," said Mr. Pennybacker, who appeared on the program in the place of Logan Waller Page, director of the United States office of public roads. Mr. Page was summoned before the congressional committee to submit reports on which to base appropriations by Congress next year and was unable to appear. Mr. Pennybacker's talk was based on the paper, "State Highway Legislation," that Mr. Page had prepared.

"Indiana is a state that has not yet taken up the policy of state aid in road building," continued Mr. Pennybacker. "Expenditures for good roads in Indiana compares favorably with those of any other state, but the money is poorly handled under the present system and the results are not what the expenditures warrant."

Model Bill Ready.

"The office of public roads has prepared a model state-aid bill. It provides for the establishment of a state commission to be removed from politics,

and this commission should appoint a state highway commissioner. He should be a civil engineer with experience and skill as a road builder. This commission should control road building in the state, though under the model bill the initiative would rest with the local authorities except in the case of trunk line roads, which would be entirely under the control of the state highway commission. By this I mean that local authorities should decide upon the improvement of roads, but that the work when done should be under the supervision of the commission and its skilled workers and superintendents.

"It is estimated that 100,000 road bosses are employed in states that, like Indiana, still have the road building done entirely under the supervision of local authorities. These men are unable to give the necessary time to the work and they improve, repair or neglect roads without skilled judgment bearing upon their decisions."

"This commission of skilled labor and supervision combined with the system of working out road taxes cannot accomplish nearly the results with a certain expenditure that can be attained when taxes are paid in cash and the money expended to obtain skillful and scientific work on the roads."

Mr. Pennybacker emphasized the necessity of road maintenance after a road has once been constructed, and, in applying the provisions of the model bill to the campaign in Indiana, particularly pointed out that especial provision is made for the careful maintenance of highways in this bill.

Michigan Sets Pace.

This feature was emphasized also by Mr. Earle in his talk, which he confined largely to the application to Indiana of the work being done in Wayne County, Michigan, in building 250 miles of fine roads, radiating in all directions from Detroit throughout Wayne County.

"The campaign for good roads in Michigan began when Mr. MacDonald, our president, came to Michigan and went about the state with a homely, cross-eyed man (referring to himself) doing missionary work in this line. To Mr. MacDonald, then, belongs much of the credit for the present work in progress in Wayne County, and I hope the missionary work in Indiana will be productive of as good results."

"I understand your governor, in his speech this morning, said he hoped that five years from now Indiana roads will be so good that not even a man with the jaundice and cross-eyed could find any fault with them. Well, I hope so too, but, by gum, they will have to be pretty good if one cross-eyed man can't help them out."

F. J. Robinson, deputy minister of public works in the province of Saskatchewan, Canada, arrived in Indianapolis in time to give his paper on "Pioneer Road Making in Saskatchewan, Canada."

His story of how road building first commenced in Saskatchewan a number of years ago, even before it became a province in 1905, and the details he gave of the carrying on of the work greatly interested those present, who have made road building practically a life study. His address was largely statistical and technical.

Joseph W. Hunter, state highway commissioner of Pennsylvania, read the first paper of the afternoon on the "Application of the Highway Law of Pennsylvania." In the course of his talk he explained the construction of some roads in Pennsylvania which are being constructed at the cost of \$18,000.00 a mile. Pennsylvania employs the state aid plan in building its roads, and Mr. Hunter's paper dealt with many phases of the plan that will feature in the campaign in Indiana for a state aid law.

Indiana is an important state in the present scheme of the American Road Builders' Association, and throughout the entire convention road construction will, as it did at this gathering, form the chief topic of discussion. The system of working out road taxes as is now done in Indiana was condemned by the speakers and was a particular topic of the addresses by Mr. Pennybacker and by Horatio S. Earle, former state highway commissioner of Michigan and a leading spirit in the immense road building project in Detroit and Wayne county, Michigan.

"Stop the labor system of paying road taxes," said Mr. Earle. "Make the men who use the roads

pay for them. It is not fair to allow foreigners to come into the cities, share the benefits derived from good roads and yet escape paying any portion of the taxes to maintain them. Indiana has an abundance of material with which to build roads and it certainly has the wealth to install the best roads in the country."

"Why, the corn crop in Indiana last year would build a road from Indianapolis to Denver, from Denver to San Francisco, from that point a pontoon bridge to Manila, then to London, then to New York and back again to Indianapolis, and there would still be corn left. And this road built by Indiana's corn crop alone would be one foot deep and twenty-nine feet wide," declared Mr. Earle. When questioned afterward about his "corn story," Mr. Earle said:

"I got that corn story from the United States government, and if Uncle Sam is a falsifier, then I am."

There was no night session and delegates crowded the German House after supper to view the machinery and material exhibition and moving-picture show.

Indianapolis business men interested in the good roads movement entertained President James H. MacDonald, of Hartford, Conn., and Secretary E. L. Powers, of New York, of the American Road Builders' Association, at a banquet at the Columbia Club in the evening. About twenty-five members of the association attended.

The Indianapolis men who acted as hosts to the visitors are: Clarence A. Kenyon, William Fortune, David Wallace, Charles A. Bookwalter, Carl G. Fisher, Harry B. Smith, William Holton Dye, Fred Willis and Will H. Brown. Several speeches were made after the dinner, practically all of them on subjects pertaining to the good roads movement.

WEDNESDAY MORNING SESSION.

Samuel H. Hill, of Seattle, Wash., at this session urged that Congress be asked to construct a national road from Walla Walla, Wash., to Omaha, Neb., to be called the "Marcus Whitman Way," in honor of "the man who saved to the United States that great territory now comprising Washington, Oregon and Idaho." Samuel Hill, of Seattle, Wash., addressing the American Good Roads Congress at the German House, declared the question of good roads is one in comparison to which "the tariff question and the building of the Panama Canal are mere jokes."

"Cart Before Horse."

Mr. Hill has studied roads in every part of the world and is an international figure in the good roads movement.

"The trouble is, gentlemen, the 'cart is being put before the horse' in these matters. It has been shown that on good roads, products, wheat for example, can be transported at a cost of 10 cents a ton a mile. The lowest average figure given for the United States is 30 cents a ton a mile. If our roads are improved it would mean a saving to every farmer hauling wheat of 20 cents a ton a mile.

"Now, the average acre in the United States produces 3,000 pounds each year. The average farm is of about eighty acres. With the saving good roads would bring in transportation, each farmer would save 30 cents in marketing the products of each acre each year. On eighty acres he would have \$240 a year.

"Gentlemen, I have collected statistics showing that the farmer with an average family spends \$240 each year for groceries. So, you see, good roads would mean to each man farming eighty acres a saving that would pay for his groceries each year.

"Our government must make some changes. Gentlemen, I am a Republican, but I tell you this: Our government must get back to the people; back to the soil."

Mr. Hill spoke on convict labor, which, through his efforts, has been tried and, he says, been made a success in the state of Washington. The proposition of the Washington State Good Roads Association for the construction of the "Marcus Whitman way" as a national road embodies a provision for Federal convict labor.

"Washington," said Mr. Hill, "is a state rich in nothing, as yet, except possibilities. Convict labor on our roads has been, therefore, a necessity, perhaps. But it has meant the saving of a sum to the state that I will not attempt to name to you. Our convicts formerly made grain sacks in the prison. Each sack cost the state 8.8 cents, and the state was selling them at 5 cents. So the convicts formerly worked to see how much money they could lose for the state. In putting these

men on the road we have solved both the convict economic and humanitarian questions. We save the state money and we make men out of the convicts in our prisons."

Charles P. Light, commissioner of roads of West Virginia, spoke on "Earth Roads," and declared that any man with a plow and a common log drag can make a splendid dirt road if he will keep at work on it.

"Dirt roads can't be given a hard surface so that they are good for hauling all the year round, but they can be made fine roads for nine months each year," declared Mr. Light. "It takes time and money to build macadam or hard-surfaced roads. It takes little of either to construct and maintain good dirt roads.

"I firmly believe the construction of dirt roads is one of the first and most important steps in obtaining better roads later. Get the grade. The grade always lasts. Then make a good dirt road. When you want a better road later everything is in readiness to construct that road. Get your farmers to drag the dirt roads—not when they feel like it, but just at the time the work ought to be done, and you will have dirt roads, which, during good weather, are the best of roads."

Favors State Supervision.

Samuel H. Lea, state engineer of South Dakota, read a paper on "Highways of the Northwest." He said the next South Dakota legislature will pass a good roads law and that men of that state interested in good roads are going to see that it is the right kind of a law. He advanced state supervision of road construction, the point Indiana good roads men hope to gain, as the solution of the road-building problem. In his paper Mr. Lea reviewed the road history of the Northwest. He told of the care taken to maintain the roadways that were the first paths through the West and urged that maintenance be an important feature of road work all over the United States.

T. R. Atkinsons, state engineer of North Dakota, told of the "Progress of the Good Roads Movement in North Dakota." His paper contained interesting statistics and showed in detail the plans and work of his state.

WEDNESDAY AFTERNOON AND EVENING.

Thirty automobiles this afternoon took 150 of the delegates attending the congress for an hour's ride about the city, including a trip around the Indianapolis Motor Speedway.

Five hundred delegates and interested Indianapolis men in the evening at Murat Temple Banquet Hall enjoyed the elaborate hospitality of the Executive Committee of the Indiana Good Roads Association. Fred I. Willis, David Wallace, William A. Holt and Will H. Brown formed the special committee in charge of the evening's program, former Mayor Charles A. Bookwalter acting as master of ceremonies.

Closing the evening's program, Mr. Bookwalter, after a short introductory speech praising the work of the congress and congratulating Indianapolis upon having the opportunity to entertain the delegates, introduced a number of the prominent men at the congress for short talks. Among these were Mr. MacDonald, Harold Parker, chairman of the Massachusetts State Highway Commission, and Samuel Hill, of Seattle, Wash.

THURSDAY MORNING SESSION

This session was called to order by President J. H. MacDonald at 10 a. m.

Harold Parker was introduced to the convention by President MacDonald as coming from the state which has the best improved highways in the United States. Massachusetts was the second to adopt the highway commission and state aid method of obtaining better roads.

"Massachusetts has spent \$9,000,000.00 in improving her highways, and that is the best expenditure the state ever made," said Harold Parker, chairman of the Massachusetts State Highway Commission. Then he added:

"And Indiana cannot spend money to a better advantage than in the construction and maintenance of her roads. No other expenditure will bring so great returns."

Mr. Parker said that the changed conditions brought about in one community alone by the improvement of its highways was sufficient to demonstrate the actual worth of better roads.

"Our Cape Cod district," he said, "was formerly merely a poor fishing community. It is all sand there, and of course there were no roads. By long experimenting we found how we could build good roads in the sand, and the result is that Cape

Cod is a prosperous district today. The excellent roads there make it possible for the wealthy residents not only of our state, but of Indiana, to maintain elegant summer homes on the cape, and to travel back and forth at will by automobile. And what is true of that one district is also true of most of the state, for our prosperity and our happiness have been advanced far beyond the amount of the expenditure for good roads."

He said the market zone of the farmer and gardener has been increased by the improved highways so that now the producer may haul twice the load twice as far as he did formerly at the same cost or for less.

"The market zone has been increased at least 100 per cent," said Mr. Parker, "and of course that has brought about largely increased valuations of the land. It will have the same effect in Indiana if you will but recognize the possibilities and provide the money and the correct methods for improving your highways."

Mr. Parker dwelt at length on the roads of his state, built of gravel and stone, and treated with special oils. He said that the advent of the automobile and the disintegrating effect it has on the ordinary macadam road has made it necessary to discover new methods of treatment.

At the close of his address Mr. Parker suggested that he would be glad to answer questions, and at once a resident of Johnson County, Indiana, asked Mr. Parker what would be the effect on the roads he had described if twenty-ton traction engines should drive over them constantly.

"Nothing would have so serious an effect on these roads as the engines you speak of," was Mr. Parker's reply.

"Then what would you do about it?" was the next query.

"Keep them off," said the commissioner.

"That might do for Massachusetts," was the rejoinder of the Johnson County man, "but here in Indiana we raise grain and we have to thresh it. We need those traction engines in our business."

Mr. Parker then said that if there are good gravel roads he would not try to use the oil preparation such as he had described. And the Johnson County man seemed pleased and explained that he was pretty well satisfied with the gravel roads of his county himself.

"We are going to have a good roads law in Indiana if it takes a fight to get it," said Clarence A. Kenyon, chairman of the Indiana Good Roads Association. "I don't think we will have to fight for it, but, if it comes to that, we will fight. Tomorrow we hope to form a permanent organization of the Indiana Good Roads Association, and this will be done if the attitude of the delegates from all over the state is favorable. I think they all want such a permanent association and will be in favor of the appointment of a committee to draft a good roads law to present to the next legislature."

"Indiana people think they have good roads because the standard of Indiana highways is, generally speaking, high. But our roads are mediocre. At present we are in a rut, being satisfied with our condition," said Mr. Kenyon in summarizing his view of the situation, "and Indiana must be awakened to the fact that all around her other states are rapidly going ahead in one of the most important public movements of the day.

"Road taxes must be paid in cash to secure the right results," Mr. Kenyon continued. "Railroad lobbyists have said, 'Oh, let the road matter go over until next year,' when a consideration of the question has been asked heretofore. Public feeling is now so thoroughly awakened on this question I don't think the railroads will say anything. Corporations don't give the state the full value of their road tax unless it is paid in cash."

W. S. Gearhart, state highway engineer of Kansas, interested Indiana men present with a paper on "Bridge and Culvert Construction." His paper was a discussion of the technicalities in culvert building, and he declared he believes cement concrete the best material. He deplored the continued use of wooden culverts in some portions of the country and said he has found corrugated culverts too thin to last long because of rapid rusting and heavier iron culverts more expensive than concrete, which, he said, will outwear anything else. Mr. Gearhart discussed bridge construction briefly.

Townsend A. Ely, state highway commissioner of Michigan, read a paper on "The Progress of Road Building in Michigan." Like the papers of many of the leaders in the good roads movement read at the congress, his was devoted to the subject that is interesting Indiana—that of state aid in road construction.

"Michigan has a unique method of extending aid from the state to the county," said Mr. Ely. "Upon the completion of a road by any county

authorities it is examined by the state commissioners and, if approved, a bounty of so much a mile is granted by the state; that is, for a properly constructed earth road the state returns to the county \$250.00 a mile; for gravel, \$500.00 a mile; for asphalt surfaces, \$1,000.00 a mile, and so on, according to a certain fixed schedule."

James C. Wonders, state highway commissioner of Ohio, read a paper on "Present Highway Laws of Ohio and the Proposed New Law," Ohio being one of the states that this winter hopes to obtain a state aid statute to govern road construction. His outline of the proposed new law in Ohio showed that it is the intention to provide that each county or each township shall have a competent superintendent in active charge of road work, and to provide that these superintendents shall be men experienced in the construction of roads who will be able to devote their time to the work.

THURSDAY AFTERNOON

At 2 p. m. the meeting was called to order by J. H. MacDonald. The afternoon was taken up with the Question Box and Discussions of Topics.

At night at the K. of P. Grand Lodge Hall, in the Indiana Pythian building, delegates to the congress heard three illustrated talks on good roads by Mr. Kenyon; A. N. Johnson, state highway commissioner of Illinois, and Samuel Hill, of Seattle, Wash. Mr. Kenyon, in his talk on "Roads, Here, There and Everywhere," said Indiana has some fairly good roads, but that the best roads are far behind those of other states where the good roads work has been going on actively. The many lantern slides he used to illustrate his talk showed how Indiana road builders dump gravel and stone in the center of the roads, leaving it to be worn down by traffic.

Pictures taken in New Jersey, Connecticut, Massachusetts and France and England showed what highway construction has done to give these states and countries the best possible thoroughfares.

Mr. Hill showed pictures of good roads in many parts of the world, taken during extensive travels, but his pictures of convict laborers in the state of Washington building great roadways through the mountains was of the most intense interest following his address on "Convict Labor" at the session Wednesday morning.

Illinois road work was graphically pictured in lantern slides and words by Mr. Johnson. He showed some of the bad roads of old days and what has been made of them. He also showed pictures and told of former faulty bridge building, illustrating the structures that have replaced them.

One of the topics which received much consideration was whether the wagon tires should be built for the roads or the roads built for the tires. The consensus of the session was that the former condition should prevail. On this subject Levi G. Saffer, Selma, Ind., 80 years old, who says he is the oldest man in the United States rural free delivery service, criticized Indiana roads.

A warm campaign is being waged in the sessions of the congress by delegates from Detroit, Mich., and Buffalo, N. Y., to land the 1911 meeting of the American Good Roads Congress. Delegates from each city have a large supply of "literature" showing pictures of the cities and setting forth the special advantages.

Buffalo is sounding the slogan for years used by Indianapolis, calling herself "The Convention City," and in addition predicts she will soon be "The Convention City of the United States."

All the delegates are working hard to impress upon the congress generally, and particularly upon the board of directors, which names the meeting place, that their city is the best for the next year's meeting.

FRIDAY SESSIONS

The efforts of Indiana men, who brought the 1910 meeting of the American Good Roads Congress to Indianapolis, to further the movement in this state met with success today, when the delegates to the convention adopted resolutions making the Indiana Good Roads Association a permanent organization, providing for a committee to prepare a good roads law to present to the next General Assembly and briefly outlining the provisions of the bill as it is desired it should be enacted.

This move for good roads saw its inception at the morning session of the congress in Tomlinson Hall, when, after a number of speeches by Indiana men, resolutions were presented to the convention by Marcus R. Sulzer, of Madison, Ind. They were adopted without dissent. The resolutions provided that Clarence A. Kenyon, presiding officer at the

"Indiana day" sessions, name the committee by appointing two delegates from each of the Indiana bodies instrumental in the temporary organization of the Indiana Good Roads Association to entertain the convention of the American Road Builders' Association. In the afternoon at the session at the German House Mr. Kenyon announced the names of the members chosen for this committee.

The resolution presented the congress follows:

Resolved, That the Indiana members of this convention are in favor of such good roads legislation by the next general assembly as will provide for a state highway commission and state and county aid for the construction and maintenance of principal roads of this state; of a graduated automobile and vehicle tax, the proceeds to be used for the purpose of maintaining the highways of Indiana; of the use of state, county or municipal prisoners who have been convicted of crimes and misdemeanors in the preparation of road material and the construction and repair of highways, if it is deemed feasible by your honorable body;

Resolved, That it is the sense of this convention that the Indiana Good Roads Association be made permanent and that a committee consisting of two members from each of the affiliated associations be appointed by the chair to take all necessary steps to effect the same and that the chairman of today's meeting be ex-officio a member of that committee;

Resolved, That a committee of twenty-five be appointed by the chair to prepare a bill or bills embodying the general idea set forth in these resolutions previously adopted, and that the chairman be a member of that committee; and, be it further

Resolved, That a copy of these resolutions be sent to the governor and each member of the general assembly.



E. E. FILLION, C. E., OF THE LEHIGH PORTLAND CEMENT CO., AT INDIANAPOLIS, IND.

Enthusiasm over this action was expressed on every side by Indiana men attending the convention, and it is the purpose of the men heading the movement to get the committee at work within a short time so that the good roads bill drafted by the body may be submitted shortly after the General Assembly meets in January.

It is proposed to embody in the bill not only the provisions for a state highway commission, state and county aid in the construction of roads, and a graduated automobile and vehicle tax, but a section providing for the use of convict labor either in producing road materials or in actual construction work upon the highways.

Mr. Kenyon announced the following as members of the committee:

Indiana Engineering Society—C. C. Brown and Prof. W. K. Hatt

Indiana Bureau of Good Roads—J. C. Crabill and G. J. Pyle

Indiana Manufacturers' Bureau—M. W. Mix and J. L. Ketcham

Indiana Rural Letter Carriers' Association—W. J. Ward and J. O. Bonebrake

Northern Indiana Good Roads Association—Lorenzo D. Hall and Cadmus E. Crabill

Indiana State Trustees' Association—C. E. Pittenger

Indianapolis Trade Association—C. G. Fisher and C. A. Bookwalter

Indianapolis Commercial Club—William Fortune and Hugh Dougherty

Indianapolis Board of Trade—Bert A. Boyd and William Scott

Indianapolis Manufacturers' Association—H. H. Rice and S. C. Parry

Indianapolis Automobile Trade Association—Fred I. Willis and F. O. Smith

Indiana Conservation Society—William Holton Dye and Dr. H. O. Pantzer

This committee will choose a subcommittee on legislation, whose duty will be to draft the bill, present it to the assembly and take charge of the legislative interests of the Indiana Good Roads Association.

During the afternoon session A. R. Beardsley, of Elkhart, Ind., submitted a resolution providing that the treasurer of the Indiana Good Roads Society publish each month a booklet showing all receipts and expenditures of the association. The resolution was adopted.

"It will necessarily require considerable money to conduct the campaign this organization proposes," said Mr. Beardsley, "and the people of the state, contributing to this fund, will want to know just what is being done." His proposition met with approval and will govern the work of the permanent organization when completed.

When the first session of the last day of the American Good Roads Congress was called to order in Tomlinson Hall by Mr. Kenyon, presiding on "Indiana day" in place of President James H. MacDonald, L. Ert Slack, of Franklin, Ind., was introduced as the speaker.

"Indiana needs legislation," declared Mr. Slack, "and, with the proper organization to present the matter to the next General Assembly, we can get it. This matter of road construction in Indiana has been left to Mr. Tom, Mr. Dick and Mr. Harry in the past, with the only result certain from such procedure.

"I believe in the use of the state's convicts in preparing material for road work," asserted Mr. Slack, "but I am not in favor of putting these men at work on the highways in constant view of our young people." Mr. Slack also declared himself in favor of a tax on automobiles, so that this traffic, held to be the most destructive to roads, should be made to pay a proportional rate of road maintenance.

Frank Terrace, a self-styled "good roads agitator" and a practical farmer in King County, Washington, addressed the delegates during the morning, and his speech was an important factor in producing the enthusiasm that swept the resolution of Mr. Sulzer through without a dissenting vote.

In a speech made before he arose in the convention to present his resolution Mr. Sulzer urged Indiana "to get busy."

"Indiana excels every other state in the Union in everything but roads," declared Mr. Sulzer, "but when I think of Indiana's roads as compared to those of many of the states, I must confess I hang my head in shame. Indiana must get busy. Indiana ought to be in the front rank of the states of the Union."

Harold Parker, chairman of the Massachusetts State Highway Commission, in a short address, urged upon Indiana men interested in good roads action that would result in the establishment of a state highway commission.

"When you do this be sure that you keep your highway commissioners unhampered," warned Mr. Parker. "Above all things, get these men away from politics and keep them away. And give the commission power to do something, making sure, then, that the men named for this commission are capable workers."

When the congress met in the afternoon at the German House many Indiana men in attendance took up the discussion of the bill to be presented to the legislature. Every speaker favored the payment of road taxes in cash, the establishment of a highway commission and state aid in road construction. Speeches of the afternoon tended particularly toward the framing of the bill.

"The main trouble with conditions in Indiana," declared Horatio S. Earle, one of the leading figures in the American Road Builders' Association, "is a disease I call 'statute laboritis.' I hope that this disease, the working out of road taxes, will be corrected in Indiana as a result of the movement started in this convention today."

Prof. W. K. Hatt, of Purdue, who has been in charge of the university's display of apparatus for testing road materials in connection with the congress, delivered a short talk, calling the attention of Indiana officials to this department at Purdue.

Professor Hatt urged that Indiana officials make use of this department whenever they are in need of such services. Prof. J. H. Skinner, head of the department of agriculture at Purdue, spoke briefly concerning the interest of Indiana farmers in bringing about the passage of laws that will give them the best possible roads.

Everybody Thanked.

Upon the completion of the discussions by Indiana men Mr. Kenyon abandoned the chair in favor of President James H. MacDonald, but before releasing the gavel Mr. Kenyon received a resolu-

tion from Horatio S. Earle, of Detroit, Mich., expressing the thanks of the American Road Builders' Association to President MacDonald for his able leadership of the congress. The resolution, in closing, said:

"We also extend our thanks to the state of Connecticut for lending us its highway commissioner." The resolution was passed amid applause.

Harold Parker, chairman of the Massachusetts State Highway Commission, as chairman of the committee on resolutions, submitted a report thanking the Indiana Good Roads Association and federated bodies for the entertainment accorded delegates to the congress. This resolution also submitted to the American Road Builders' Association a proposal for the organization of an international good roads congress, to represent all English-speaking nations.

President MacDonald, in a brief closing address, said:

"We are now about to bring to a close the greatest good roads meeting this country ever has known. More than 1,400 delegates have attended these meetings, the greatest good roads assemblage in the history of the country. There were about 1,200 at last year's meeting, which was then considered a remarkable showing. On behalf of the American Road Builders' Association, I wish to thank Indianapolis for the royal entertainment accorded us and to extend the wish that Indiana, as a result of this meeting, will soon be a leader in good roads construction."

THE EXHIBITS

One of the interesting features in connection with the convention of the American Road Builders' Association was the exhibition of road making machinery, materials, tools and appliances in the main hall, second floor, of the German House, and in the summer garden adjoining the building. The exhibits of heavy machinery were under a large canvas tent, which was wired for electric lighting and the numerous electric lamps distributed throughout the tent cast their bright rays into every nook and corner, making it possible for interested visitors to examine the minutest details of the complicated machinery after nightfall.

Much interest was manifested by all visitors in the exhibit, which perhaps was one of the most complete in connection with road building which people had ever seen at any of these conventions held in the past. Hundreds of people crowded the main hall on the second floor and the tent in the summer garden throughout the four days the convention was held to view the exhibits.

The exhibit hall presented a very attractive appearance. The booths were handsomely decorated and festooned, the color scheme throughout the hall being carried out in white and green. The big hall was divided into three aisles divided by partitions six feet in height in which the booths, most of them covered with rugs, displayed their exhibits of samples of road building material, models of machinery and disseminated information and literature. All the partitions and railings were placed in position without driving a nail. The design and arrangement of booths was admirable. The Road Builders' Association was fortunate in getting E. E. Fillian, engineer of the Lehigh Portland Cement Company, to devote some of his time in helping it to complete the arrangement in the exhibit hall, which, to say the least, was unique and attractive.

An exhibit which drew throngs of people to it under the canvas tent in the summer garden was that of The Iroquois Iron Works, of Buffalo, N. Y. It had on exhibit a 12-ton macadam roller, an 8-ton tandem roller, melting kettles for melting tar asphalt and bituminous products, paving tools, asphalt machinery, etc. The big rollers had steam up and were in full operation. The exhibit was in charge of T. H. Morris, the company's Chicago representative.

Theodore Rauschenbach, president of The Rauschenbach Construction Company, Evansville, Ind., under the tent in the summer garden exhibited the Rauschenbach curb and gutter finishing machine. Visiting engineers were much interested, as it showed during demonstration that all hand work is eliminated; it is simple and rapid in manipulation and the finished work is perfect. The Rauschenbach Construction Company put in seven miles of curb and gutter in Evansville (Ind.) streets last summer, and the company reports it has had the biggest year in its business career, extending over sixteen years.

The Collapsible Steel Form Company, of Detroit, Mich., 411 Moffat building, makers of steel molds for the building of cement culverts, sewers, etc., exhibited samples of its steel molds in the main

exhibit hall. These molds are made in two ten-foot lengths with head plates. The exhibit was in charge of F. S. Freer, its sales agent.

The booth of the Lehigh Portland Cement Company, in the main exhibit hall, was one of the most attractive and neatly arranged, showing material in the various stages used in the process of manufacturing "Lehigh" cement. There were souvenirs galore, consisting of pencils, watch fobs and books. The exhibit was presided over by F. E. Paulson, Bert Swett, E. E. Fillian and Ed Sweeney. The "bunch" entertained its visitors royally, as usual.

J. D. Adams & Co., of Indianapolis, Ind., manufacturers of road grading machinery, exhibited in the summer garden, under the tent, their Little Roadster Grader—a real road grader for two or four horses, weight 1,200 pounds, reversible, adjustable bearing wheels—the only light machine, they claim, that actually does the work. J. D. Adams presided over the exhibit. They also had a booth in the main hall.

The Robeson Process Company, of An Sable Forks, New York, exhibited samples of "Glutrin" and distributed literature concerning its manufacture and use from their booth in the main exhibit hall. Glutrin is used for treating macadam, dirt, sand-clay and gravel-clay roads. An ordinary sprinkling cart can be used from which glutrin can be distributed as easily as water itself to road surfaces. The whole idea in applying glutrin is to give it a chance to sink into the road and dry, which it does in from four to six hours. It is highly commended wherever it has been used on roads. R. A. Rappolla, vice-president of the company, was in charge of the exhibit.

The Standard Oil Company had an interesting exhibit in its booth in the main hall of samples of Standard macadam asphalt binders and oils for use on roads.

Thomas L. Barrett, general sales agent in Louisville, Ky., exhibited in the summer garden under the canvas tent a Watson dump wagon and a Rauschenbach curb and gutter finishing machine, and on Michigan Street in front of the German House a Milwaukee concrete mixer. From his booth in the main hall he distributed much literature concerning these three machines to visitors, to whom he explained their merits.

P. O. Rudy, president of the Crawfordville Corrugated Culvert Company, Crawfordville, Ind., exhibited in its booth in the main hall samples of its product. These samples consisted of 12-15-18-inch culverts made in 2-foot sections, telescoped ends firmly bolted together. On the 24-inch sizes and up, heavy angle irons are placed around the culvert every six feet, which adds considerably to the strength of the culvert, and can be disconnected at any of these angle joints. This makes it convenient for shipping, as the section can be made just long enough for a box car and can be shipped

by local freight—an advantage, as it enables them to ship large sizes at local freight rates.

The Quenner Dry Crusher Company, Singer building, Broadway, New York City, had a booth in the main hall where literature was distributed, which treated of the advantages of the Quenner crusher and its method of "breaking" rather than "crushing" rock. Many people interested in the good roads movement visited the booth of this concern and went away with a good opinion of the "Quenner crusher."

The Burch Plow Works Company, of Crestline, Ohio, manufacturers of the Burch sewer inlets, exhibited in its booth on the second floor of the German House, in the exhibit hall, its most popular samples of sewer inlets. Hundreds of callers daily at the booth were told that the company considered its product "as good as the best and better than the rest."

The G. F. W. Company's exhibit at its booth in the main hall on the second floor of the German House consisted of large photographs of machines built by this company at Saratoga Springs, N. Y. G. W. Gailor, treasurer of the company, presided at the booth and explained the points in the machines photographed—the hauling tank with distributor lowered, the hand machine, capacity 1 barrel; the Perfection oil and asphalt distributor, and many more, all used in road building.

The Geiser Manufacturing Company, Inc., of Waynesboro, Pa., and offices at 168 Kentucky Avenue, Indianapolis, Ind., distributed literature and information from its booth in the main exhibit hall concerning its "Peerless" 12-ton roller used in road building. Its 10 and 12-ton rollers have double cylinder, balance piston rods, double driver, dust-proof steel gear, unequaled front truck construction, easy and positive steer, large diameter front rollers, minimum width of tread with maximum face of driving rollers permits use on narrow roads. Short wheelbase enables roller to make very short turns, and with double drive and front truck arrangements there is no risk of upsetting.

The Road Department of the Barber Asphalt Paving Company, of Philadelphia, Pa., exhibited samples at its booth in the main exhibit hall of its Bermudaz road asphalt, which is used in the construction of asphalt and macadam roads, which, it claims, makes a permanent and durable roadway. The exhibit was in charge of the following representatives of the company: W. E. Tyler, Indiana; R. G. McKay, Oklahoma; J. L. Foley, Michigan, and E. D. Lockwood, Connecticut.

The Huber Manufacturing Company, of Marion, Ohio, had one of its 10-ton New Huber road rollers on exhibit on New Jersey street, at the German House. It had steam up and gave demonstrations of its capabilities, running to and fro with The Star dumping wagon attached, made by the Glen Wagon Company, of Seneca Falls, N. Y., for a



BOOTH OF THE LEHIGH PORTLAND CEMENT CO. AT GOOD ROADS CONVENTION, INDIANAPOLIS, INDIANA.

block or more, to the great edification of all people connected with the good roads movement. Its booth, where information and literature was disseminated, was in the main exhibit hall. This exhibit was in charge of H. A. Davis, manager of the company.

The National Paving Brick Manufacturers' Association, headquarters in the Board of Trade building, Indianapolis, Ind., had its booth in the main exhibit hall. Its field is purely educational in connection with good roads and streets. It exhibited many samples of brick used in streets and road building from its members in Indiana, New York, Illinois, Pennsylvania, Maryland, West Virginia and Michigan. The booth was presided over by Geo. B. McGrath.

The American Paving and Manufacturing Company, 203 Commercial Club building, Indianapolis, Ind., had its booth in the main exhibit hall, with Robt. F. Paele in charge. It exhibited samples of bitu-mass used in paving and which the company claims is the solution to the good roads problem. Many of the callers at the booth went away with the impression that the claim was well founded.

The Amies Road Company, with general office 582 Bourse building, Philadelphia, had its booth in the main exhibit hall, where were shown samples of Amiesite, a dustless and auto-proof road material. It is manufactured under patents to Jos. H. Amies and consists of the best trap rock, crushed to a size known commercially as 1½-inch stone, 1-inch stone, ¾-inch stone or ½-inch stone or gravel, as may be deemed best for the work to be performed, coated with an asphaltic cement composed of refined asphalt, containing not less than 90 per cent bitumen and suitable fluxes to give desired results.

Interest was shown by visitors in the samples of pavement exhibited by Warren Bros. Company, of 59 Temple Place, Boston, in its booth in the main exhibit hall. Thos. F. Murphy, who presided over the exhibit, explained the merits to callers of "Warrenite," "Bitulithic," "Bitrock," "Bitu-stone," "Puritan," "Rockphalt," "Bituminous Macadam," all used in road building and all manufactured by this company.

F. M. Barnard, secretary of The American Association of Creosoted Wood Paving Manufacturers, 164 Dearborn Street, Chicago, exhibited in his booth in the main exhibit hall creosoted wood paving blocks which had been laid in streets in Chicago and elsewhere three and four years ago. The traffic in these streets is heavy and the wear and tear on the pavement great, but the creosoted wood blocks showed little the worse for wear. Mr. Barnard was kept busy daily receiving callers and imparting information to enthusiastic good roads enthusiasts.

The Texas Company, 17 Battery Place, New York City, and Houston, Tex., manufacturers of Texaco Road Binders, Texaco Road Oil, used for dust-laying purposes; Texaco Macadam Binder, suitable for application with the penetration method, the petrolithic and samptlie methods; Texaco road asphalt, adapted for the building up of road surfaces, and Texaco Road Builders, permanent and durable binding materials for highway construction, exhibited samples of these materials in its booth in the main exhibit hall. The exhibit was in charge of H. Tipper, advertising manager of the company.

Yellow pine creosoted blocks, the "Modern Perfect Pavement" for streets, bridges and crossings, is the description in some of the literature of the Yellow Pine Manufacturers' Association, of St. Louis. Much literature was handed to visitors at its booth in the main exhibit hall during the Good Roads Convention. O. O. Bright, who was in charge of the exhibit, showed many samples of these creosoted yellow pine blocks.

Occupying a large space under the canvas tent in the summer garden the Road Machinery Department of the J. I. Case Threshing Machine Company, of Racine, Wis., exhibited "The Case 10-ton Steam Road Roller," one of the latest and best types of these machines manufactured in this country. It had steam up, was in full running order and created much interest among road builders. A Troy dump wagon and dump box was also exhibited by the J. I. Case Company.

The Stark Rolling Mill Company, of Canton, O., exhibited at its booth in the main hall samples of Toncean metal sheets, of which they are the sole manufacturers. Toncean metal is an iron ore product of great purity, density and homogeneity. It combines durability, toughness and ductility with rust resistance.

The Kelly-Springfield Road Roller Company, of Springfield, O., was represented at its booth in the main hall by H. L. King, general sales agent. It manufactures Springfield Tandem Rollers in sizes from 2½ to 10-ton finished weight. These rollers are used for making asphalt streets, rolling sub-

grade, rolling embankments of reservoirs, rolling surface of brick streets, rolling turf in parks, cemeteries, etc. They may be used as stationary engines for furnishing power.

An unusual and varied exhibit of crushed stone from the quarries in Greencastle, Ridgeville and Portland, Ind., of the A. & C. Stone & Lime Company, 17 N. Pennsylvania street, Indianapolis, was displayed at its booth in the main hall. The crushed stone of this company is extensively used in road building throughout the state.

Samples of Pioneer Road Asphalt, manufactured by the American Asphaltum & Rubber Company, Harvester building, Chicago, cut from the pavement of streets in Hammond, Ind., and from the pavement in the famous drive in Lincoln Park (Chicago) connecting the Lake Shore Drive with Sheridan road, were exhibited in its booth in the main hall. These samples were taken from these pavements laid two years ago and created surprise, as they practically showed little wear and tear. Thomas M. Roche, in charge of the booth, also had samples of the company's water rubber pipe coating, waterproofing, block paving filler, paving cement and floor mastic.

The American Sewer Pipe Company, Akron, O., exhibited samples of its sewer pipe in its booth in the main hall. B. S. McNutt presided over the exhibit.

Samples of Coal Tar Paving Pitch, manufactured by the Barrett Manufacturing Company, and used in road building, were distributed from its booth in the main hall. There were many callers, all of them carrying away samples, who were cautioned



CHAMPION QUARRIES CRUSHING PLANT, STONE CITY, IOWA.

not to open the tightly sealed little boxes containing the paving pitch until they got home.

The Austin Western Company, of Chicago and Aurora, Ill., exhibited its heavy road machinery under the canvas tent in the summer garden at its space in the main exhibition hall of the German House. The company gave each day a moving picture show, mornings and afternoons, before the sessions of the convention were called. The subjects selected for the moving pictures were views of road construction and the machinery used. The auditorium of the moving-picture show seated 200 people and was always filled.

The exhibit of the Perdue University, of Lafayette, Ind., was one of the most interesting in the big main hall. It consisted of many cementation testing machines, models for testing the cementing qualities of stone dust, tensile strength of materials used in road building. The exhibit was presided over by Prof. W. K. Hatt of the university.

"Concrete in Highway Construction" is a text book for highway engineers and supervisors published by the Atlas Portland Cement Company, and was distributed with its compliments to many hundreds of visitors to the exhibit in the main hall and was much appreciated. It is a book of 140 pages and contains much valuable information concerning concrete sidewalks, curbs and gutters, street pavements, culverts, beam bridges, arch bridges, retaining walls and miscellaneous information.

Among the prominent men in the crushed stone industry attending the convention were the following:

E. H. Favor, contractor, Dayton, O.
Reid & Coddington, contractors, Niagara Falls, N. Y.

Mr. Steege of Reiman-Steege Co., Terre Haute, Ind.

Geo. A. Nelson, Decatur, Ala.
T. C. McGovern, Trenton, N. J.

T. C. Schwaar, manager, Baltes Stone Co., with plants at Ft. Wayne and Montpelier, Indiana.

G. A. Nettleton of the Lake Shore Stone Company, with plants at Milwaukee, Wis., and Muskegon, Mich.

W. C. Thoma, vice-pres. and genl. mgr. Kentucky Rock Asphalt Company, main offices Pittsburg, Pa.; mines and quarries, Kentucky.

L. C. Hatch, manager of The Ohio Crushed Stone Company, which is composed of the following companies: Ohio Marble Company, Piqua, O.; Mills Bros. and Mockes Lime Co., Springfield, O.; Reinheimer Bros., New Paris, O.; Kirschner Stone Co., Hatton, Ind.

A. A. Hall, Piqua, O.
Reinheimer Bros. & Son, New Paris, O.

J. C. Armfield, pres., A. B. Meyer, vice-pres., and E. B. Taylor, manager, A. & C. Stone Company of Indianapolis, Ind.

C. L. Ireland, pres. Olive Hill Stone Co., Olive Hill, Ky.

C. L. McKee, mgr. Erie Stone Co., Huntingdon, Ind.

R. N. Kroft, supt. Ingalls Crushed Stone Co., Ingalls, Ind.

Mr. Van Winkle, supt. Ohio & Indiana Stone Company, Greencastle, Ind.

N. R. France, pres. The France Company, main office Toledo, O., with seven plants in Ohio and one in Detroit, Mich.

NEW CRUSHING PLANT:

Champion Stone Quarries at Stone City, Ia., Are Well Equipped for Business.

Stone City, Ia., Dec. 15.—The plant of the Champion Stone Quarries here consists of one No. 7½ and one No. 5 Gates breaker, with necessary auxiliaries. The stone is quarried from the hillside, placed in cars and raised to the crusher platform by means of a 36"x36" friction hoist, where they are automatically dumped and discharged into the No. 7½ breaker. The crushed material from the No. 7½ breaker passes into a continuous bucket elevator 68 ft. long between centers. This elevator discharges the material into a 48"x20" all iron frame screen, where it is separated into the different sizes and discharged into bins. The rejections or oversize which will not pass the screen are returned through a gravity chute to the No. 5 breaker for re-crushing. This breaker discharges into the same elevator that the No. 7½ breaker does and the stone is elevated and again passed through the screen for sorting.

Each of the breakers in this plant is driven by an independent induction motor, the No. 7½ breaker being driven by 75 H. P. motor and the No. 5 by a 30 H. P. motor. There is also installed another 30 H. P. motor for operating the elevator, screen and auxiliaries. All of these motors are of the squirrel cage type.

The storage bins of this plant have a capacity of approximately 700 cubic yards. They are 44 ft. long, 31 ft. wide and 15 ft. high, built of reinforced concrete construction, walls about 15" thickness. The bottom of the bins is about 18" thick, reinforced by 60-pound rails spaced 16". The supporting piers are of stone, the outside piers about 5' 3" thick at the bottom and taper to 2' 6"; the central pier is about 24" in thickness.

There are two standard gauge tracks under the bins and clearance between the tracks to bottom is 15'.

This plant was designed and complete equipment furnished by Allis-Chalmers Company.

MEET IN JANUARY.

Ohio State Stone Club to Hold Annual Convention at Toledo.

Toledo, O., Dec. 20.—Arrangements have just been completed for the annual meeting of the Ohio State Stone Club on Tuesday and Wednesday, January 11 and 12, at the Boody House in Toledo.

A SPLENDID PLANT.

Up-to-Date Rock Crushing Operations of the Dunbar Stone Company Near Detroit.

Detroit, Mich., Dec. 15.—The rock crushing plant of the Dunbar Stone Company at River Rouge, Mich., is the largest plant in the vicinity of Detroit and produces all grades of stone from flux downward to the finest sizes for the consumption of the Detroit market. This plant is located at River Rouge, a suburb of Detroit, and is prepared to make both rail and water shipments. The plant is unique in that there is no quarry in the immediate vicinity of same, the stone crushed in the plant being the result of dredging operations of Dunbar & Sullivan in the Detroit river at a point some twenty-five miles distant. The stone is loaded by the dredges onto large steel scows and towed up the Detroit river to the crushing plant.

The barges carrying stone on reaching the plant are tied up alongside of the dock at the back of the plant. These barges have a flat smooth top and the stone is unloaded from the same by a very ingenious drag-line derrick machine devised by H. T. Dunbar, president of the company. This machine consists of a central structure somewhat similar to that of a locomotive crane in that it has a mast and a boom and revolves on a turntable. From the end of the boom fall four lines that are attached to four corners of a large scraper-shaped bucket. To the front of this bucket are attached two pulling lines leading to the body of the machine. The operation of the machine is as follows:

The operator swings his machine to the point he wishes to drop the bucket; he then allows the four hoisting lines to run free, thus lowering the bucket to the deck of the barge. He then starts pulling the bucket toward him and in so doing pulls the same into the pile of stone and thus fills the bucket. He then starts raising on the hoisting line, thus pulling the loaded bucket clear of the barge and raising it to a sufficient height to dump into the crushers. He then swings the machine about ninety degrees and dumps the load from the bucket into the crushers by raising on the back hoisting lines and lowering on the front hoisting lines. This machine will easily unload fifteen hundred yards of stone per day of ten hours when in the hands of an expert operator and will handle pieces of stone 3 feet to 4 feet in width by as much in height and 5 feet to 6 feet in length. The machine is operated by alternating current motors.

The dredges of the Dunbar & Sullivan Company are of large proportions and as a result send to the plant stones of unusually large size, it being not an infrequent thing to get stones 3 feet to 4 feet in width by as much in height and 5 feet to 7 feet in length, which stones are of course much too large to go into any ordinary size crusher. To pop-shoot them on the barges was not only expensive, but very hard on the barges, and besides the plant being close to factories and dwellings was very objectionable, and it was therefore decided to put in a crusher sufficiently large to take these stones. The only machine seeming to meet this requirement in every particular was the 6x6-foot sledging rolls manufactured by the Allis-Chalmers Company.

The above mentioned sledging rolls are located adjacent to the above described unloading machine and are provided at their top with a large steel hopper. These rolls consist of two massive steel rolls about 6 feet in diameter by 6 feet in length, which are mounted on heavy shafts and run in the bearings of a very heavy cast iron frame, the weight of the entire machine being in the neighborhood of five hundred tons. Each of the above rolls is driven independently by a 200 H. P. induction motor and the rolls run at a very high speed, so that the action of the knobs of the surface of same is like very heavy sledges acting upon the stone. The above mentioned unloading machine dumps directly into the hopper of this machine and the stone is reduced to about 6 inches in size. The stone from these rolls falls into a feeding hopper below, from which it flows over an automatic feeder to a heavy pan conveyor that elevates the same into the No. 9 crusher of the plant.

The No. 9 crusher is of the standard Gates pattern and sets upon a concrete foundation well above the ground level so as to avoid a pit at the elevator, and is driven by a 100 H. P. induction motor. This machine reduces all of the product of the rolls to about 3½ inches in size. The product from the No. 9 crusher flows directly to a No. 9 Stephens-Adamson continuous bucket elevator, which raises it to the screens of the No. 9 building, which are over the coarse stone or flux bins. These screens are 48 inches diameter by 20 feet in length and divide the stone into two sizes, that larger than 3½ inches and that smaller, the larger stone falling to the flux bins

below and that smaller than 3½ inches flowing to the belt conveyors leading to the screen house.

The flux bins have a gross capacity of about four hundred and fifty cubic yards and consist of a reinforced concrete substructure with timber bins. Two railroad tracks run beneath the bins for the shipment of flux.

Directly in front of the flux bins is the No. 5 crusher building in which are located two No. 5 Austin crushers, which are fed with stone through gates in the side of the flux bins. These crushers are set to break to about 2½ inches and are run whenever the demand for sizes of stone smaller than 3½ inches is greater than the amount produced in the preceding operations described above, or whenever there is an excess of flux size stone. These crushers are both independently driven by induction motors and the product from same flows directly to two 24-inch belt conveyors leading to the screen house.

Running from the front end of the flux bins to the screen house are two 24-inch Stephens-Adamson belt conveyors, these being carried in separate galleries 25 feet apart and inclined from the horizontal so as to elevate while conveying the stone to the screen house. Each of these conveyors discharge the stone at their upper end into two 48"28" Stephens-Adamson revolving screens which are provided with the various size perforations to make the different sizes of stone required by the market. The smallest perforations on these revolving screens are 1 inch diameter and the fine material passing through these perforations falls to shaking screens below. These shaking screens are 4 feet in width by 8 feet in length and one is provided under each revolving screen. These shaking screens are provided with ¼-inch mesh covering and make two sizes, that running from 1 inch to ¼ inch and that finer than ¼ inch. Both of these sizes fall to washing machines devised by E. C. Dunbar, manager of the plant, which are located directly on top of the bins below the shaking screens and very efficiently wash all of the clay and dirt out of the finer sizes of stone, making these products from the Dunbar Stone Company's plant sell at a considerably higher price than the ordinary fine sizes sell for, and also causing them to be always in demand, as they are greatly preferred by concrete workers for making blocks or other purposes requiring a fine, clean material.

The bins below the screen house are of timber construction down to the floor line. The floor and substructure are of reinforced concrete of a design brought out during the past two years by the J. C. Buckbee Company, engineers of Chicago. This design of bin is not only more economical than the old type of timber construction in the matter of first cost, but is also far more durable as well as more rigid, and is well worth the investigation of anyone contemplating the construction of new bins. The Dunbar Stone Company's bins have a capacity of seventeen hundred cubic yards and are divided into twelve compartments. Three tracks run beneath the bins for railroad shipments, while a slip from the Detroit river runs alongside of the end of the bins for water shipments.

The above mentioned type of bin construction permits the placing of conveyors underneath the bins and over the tracks so that they do not interfere in any way with the railroad shipping. These conveyors permit the removal of stone from any of the bins. In the Dunbar Stone Company's plant there are four conveyors running under the bins, each of these conveyors extending at the front end out over the slip for the purpose of loading stone on barges for shipment by water. To load a barge, therefore, all that is necessary is to start these conveyors in operation and open the gates of the compartment of bins containing the desired size of stone. The loading is thus accomplished very quickly and at a very low cost.

Adjacent to the bins and under the belt conveyor galleries is the recrushing building in which there are

installed two sets of 36x16" Allis-Chalmers Company's crushing rolls. Conveyors are provided under the bins for bringing back any size stone from the bins and recrushing the same to any size desired in these rolls. Rolls of this type can be adjusted in five to ten minutes' time to break any size stone within their capacity to any size between ¼ inch and 1½ inch. The product of these rolls falls onto two 18-inch Stephens-Adamson belt conveyors, which are inclined and elevate and convey the same to a point about midway of the main 24-inch belt conveyors leading to screen house mentioned above, where they discharge onto the main belt conveyors and the stone is thus carried to the top of the screen house for sizing.

The above described recrushing apparatus is of almost incalculable value in operating a crushing plant for the reason that one day the market will call for an amount of, say, ¾-inch stone that is far in excess of the normal capacity of the plant, while at the same time the market will not demand practically any stone of some larger size, say, 1½-inch, for instance. With this recrushing apparatus it is possible to crush down the 1½-inch stone to ¾-inch sizes, thus relieving the plant of the excess of 1½-inch stone and filling the order for ¾-inch stone, whereas with the old type plant where practically the same quantity of each size stone was made each day, it would have been necessary to take two or three days to fill the order for ¾-inch stone, and hold the excess production of 1½-inch stone in the bins or pile the same until an order came in for 1½-inch stone.

This recrushing feature for stone crushing plants was brought out by the J. C. Buckbee Company, engineers of Chicago, and is to be found in all of the larger size plants that they have built.

The Dunbar Stone Company's plant is driven throughout with induction motors, power being purchased from the Detroit-Edison Company. The wiring for all of these motors is carried in an iron conduit and circuit breakers are provided at each motor for relieving the same in case of excess loads or accidents. The buildings of the plant being entirely of timber construction, are protected against fire by a modern sprinkler system supplied with water from a large tank on a steel tower somewhat higher than the highest point of any building.

The accompanying illustration shows the general outward appearance of this plant, but the photograph is somewhat confusing at first sight, as some of the equipment used by Butler Bros. in building the Detroit River tunnel is stored in the canal on the opposite side of plant and appears in the photograph, looking at first sight as if it were part of the structure of crushing plant, but the reader will readily single out these parts from the crushing plant on a close inspection of the photograph.

The Dunbar Stone Company's plant was designed by the J. C. Buckbee Company, engineers of Chicago, who will be recalled as specialists in the design of rock crushing and gravel washing plants, and as the designers and builders of the immense Dole & Shepard plant near Chicago, Chicago Union Lime Works' plant, Doolittle & Wilcox, Limited, Dundas, Ontario, and many other of the largest rock crushing plants in the United States. The plant was built under the supervision of J. C. Buckbee Company construction engineer, Mr. W. W. Pattee. Construction work was started in November, 1909, and the plant placed in commission about the 1st of June, 1910, since when it has been in steady operation.

The Lathbury-D'Olier Company, engineers, Philadelphia, Pa., announce a merger of the interests of B. B. Lathbury, consulting engineer, formerly president of Lathbury & Spackman, Inc., and of the D'Olier Engineering Company. The company, with enlarged scope and facilities, will continue the general and special engineering, manufacturing and contracting business, heretofore carried on by their respective interests.



DUNBAR STONE CO.'S PLANT, RIVER ROUGE, MICH.

THE BEDFORD LINTON CRUSHED STONE COMPANY.

Linton, Ind., Dec. 15.—General offices of the Bedford Linton Crushed Stone Company are located at Linton, Ind. Its factory is located at Williams, eleven miles from Bedford. John Laughlin is the secretary of the company. In its factory last spring screens were installed enabling it to make the various sizes of crushed stone for macadam road purposes, concrete work and railroad ballast. Before this installation of screens it had what is called crusher run stone. The company also put in an air separating plant, by which it separates from the crushed stone, ground limestone used for fertilizing purposes. This it sells extensively to farmers direct, as well as to fertilizer factories. It also turns out a screened chip which will pass through an 8-mesh screen, which it sells in carload lots to jobbers.

Mr. Laughlin stated that business of this year was remarkably good, the only handicap experienced being the shortage of cars on the Southern Indiana road. This shortage it is believed will not continue under the new management of the reorganization of the road. Prospects for business for the coming year seem remarkably good, the company having already sold half the product its plant can produce the coming year. In the coal districts of western Greene and eastern Sullivan counties there are on file now with the county auditors applications for about 50 macadam roads, the total mileage of which is 150. These roads will be built as fast as the money is collected from taxation in these various townships. Several of these roads are contracted for and will be built early the coming year. The mileage of roads for which contracts have been let is between 25 and 50 miles. It will require 75,000 yards of crushed stone for this work. All of this work to be done is in the district of the quarry operated by this company on the Southern Indiana railway and the crushed stone necessarily will be supplied by the Bedford Linton Crushed Stone Company. This condition can naturally be applied to all work to be done in the future in the territory tributary to the Southern Indiana railway, running from Terre Haute to Seymour and Westport, covering Bartholomew, Jackson, Jennings, Lawrence, Martin, Davis, Greene, Sullivan, Vigo and Clay counties.

BIRMINGHAM QUARRIES.

Birmingham, Ala., Dec. 15.—What threatened to become a paving war, was amicably settled at the last meeting of the city council by the distribution of the work among asphalt as well as bithulithic companies.

The city fathers decided to pave Eighteenth street, from Avenue A to H, and Twenty-seventh street from Avenue T to G, Avenue G from Twenty-seventh to Twenty-ninth street. This action gave the asphalt people work amounting to about \$75,000.

The bithulithic people received contracts for the paving of First avenue from Eighteenth to Twenty-first streets; Nineteenth street from First to Third avenues; Twenty-third street from Avenue T to Magnolia avenue; Eighth avenue from West Twentieth to Twenty-eighth street, Twenty-first street from Avenue F to Avenue H, Avenue H from Twenty-first street to Twenty-second street; Twenty-second street from Fifteenth to Magnolia avenue, and Avenue J from Twenty-first to Twenty-second streets, Eighth avenue from Thirteenth to Eighteenth street, Seventh avenue from Fourteenth to Eighteenth street, Avenue I from Nineteenth to Twenty-third street, Ensley; Park avenue from Nineteenth to Twenty-first street, and West Twentieth street from Park avenue to Eighth avenue.

NEW CRUSHER MACHINERY.

Duluth, Minn., Dec. 21.—After having operated continuously for the past ten months, the mills of the Duluth Stone Crushing Company at Duluth, Minn., have shut down and, according to information received from Superintendent Martin Kennelly, will remain so for probably six weeks. The past season has been a very busy one at the stone crusher, between 75 and 100 men being steadily employed. Additional machinery and repairs will be installed during the six weeks the plant is to be shut down. This new machinery will more than double the capacity of the mills. Several large contracts for crushed stone for city improvements have been secured by the Duluth company for next season. The output the past season was over the 100,000-ton mark and was a record year for the company.

DYNALITE.

Water Grade Dynalite Fires Successful Opening Blast for Well Drill Holes at Gibsonburg, O.

The National Mortar & Supply Co., whose main office is in Pittsburg, Pa., with large lime plant at Gibsonburg, O., have heretofore been firing small shots at their quarry with the usual results of shortage of spalls at times, which is known to all quarrymen as a serious inconvenience and interruption to the rapid filling of rush orders.

To eliminate such difficulties F. J. Wertleski, superintendent of the company, decided to test out the use of deep well holes for the firing of large blasts in the quarry, and decided to use Water Grade Dynalite for the test blast, as the work would be done in cold weather and the holes would contain a large amount of water.

Arrangements were made with the vice-president and general manager of the American Dynalite Company, F. H. Briggs, who is an explosive and blasting expert, to be present at the trial blast and to furnish their water grade dynalite for the test.

The results of the test showed that Mr. Wertleski's judgment in trying out the proposition was sound, as the object aimed at was fully attained, inasmuch as the blast dislodged and broke up a large mass of rock at one operation, which gave the quarry more spalls at one time than they have ever had before, even with a large number of small shots.

The accompanying photograph shows views of the quarry and the rock dislodged, and especial attention is called to the manner in which the rock is broken up and the face of the quarry is left perfectly straight where the blast was fired.



QUARRY OF THE NATIONAL MORTAR & SUPPLY CO., GIBSONBURG, O., SHOWING ROCK DISLODGED BY DYNALITE BLAST.

The rock is a dolomite limestone, the face of the rock being an average of 25 feet in height and the formation of the rock being extremely hard from the bottom of the quarry to about one-half of the height and above this the rock being in the softer formation and more easily dislodged. This naturally requires the packing of the explosive and the confining of it into the harder rock because in this class of shooting the bottom rock must be heavily blasted and when it is blown out by the shot, if properly loaded, the top will take care of itself.

The details and results of the shot were as follows: The holes were set 12 feet back from the face and 12 feet apart. They were 5 inches in diameter and 25 feet deep, being drilled to the quarry bed with a well drill. The holes contained an average of about 55 pounds of 60 per cent Water Grade Dynalite. It was found that the cost of the explosive for blasting out the rock was about 1½¢ per ton for rock blasted. The conclusion formed, as shown by results, was that the holes could be set further back from the face and further apart. The next holes drilled will be set 14 feet back and about 15 feet apart. It is expected that these distances will be still lengthened out until a maximum of 15 or 16 feet from the face and 17 to 19 feet apart is obtained with the use of the same amount of Dynalite, which will make the economy of the explosive used still greater.

It is advisable when firing an opening shot with well holes not to attempt to set the holes too far back from the face or too far apart for the first shot, but to obtain the maximum by degrees, the object being to get the greatest distance that the amount of explosive which will be confined in the given space will do its work, then the point of greatest economy has been attained.

There were present at the blast—A. H. Lauman, president of The National Mortar & Supply Com-

pany, whose headquarters are at Pittsburg, Pa.; F. H. Briggs, vice president and general manager of The American Dynalite Company, who is inventor of Dynalite; R. H. Allyn, salesman and demonstrator for The American Dynalite Company, and F. J. Wertleski, superintendent of the National Mortar & Supply Company, under whose supervision the blasting was done, with the advice and consultation of F. H. Briggs, of The American Dynalite Company.

CENTRAL ILLINOIS QUARRIES.

Springfield, Ill., Dec. 21.—C. H. Degenhardt, of Alton, will pave Seventeenth street in that city.

The Ottawa Construction Company, of Ottawa, received a \$91,163.00 contract for two sewers in Peoria.

Anton Swenson, East Moline, will build 11,955 feet of cement walk for the village.

Using its own crusher and rock from a quarry near the building site was a big help to the Leonard Construction Company, which has been busy on three new factory buildings for Deere & Company, at Moline.

A macadam road one mile long, costing between \$5,000.00 and \$6,000.00, is said to be a part of the plans of the Elgin, Joliet & Eastern Railway in building a \$30,000.00 viaduct at Charlesworth avenue, Joliet, next spring.

A thousand loads of crushed stone, the first available in two years from the state penitentiary at Joliet, was secured for use on Maple street road in that city recently.

WISCONSIN QUARRY NEWS.

Milwaukee, Wis., Dec. 20.—The Chicago & Northwestern Railway Company has closed its quarries at Peebles, near Fond du Lac, Wis., for the winter season. The operations of the past summer were carried on in an extensive way, 84,000 cubic yards of stone having been taken out. This stone has all been used by the company for its own concrete and ballast work, the material being placed on the new line between Milwaukee and Sparta. Operations will again be commenced early in the spring.

A movement has been started in Douglas county, Wis., to have the county board purchase a stone crushing outfit and a quarry, to be operated by inmates of the county workhouse. The stone thus secured would be used in the construction of county highways, and in case there is a surplus supply it is to be sold to the towns of the county.

Labor troubles which have been encountered by the Union Lime Company at the quarries at Grimms, Wis., are said to be the result of "Black Hand letters," which have been received by the men, many of whom are Italians. These letters have been of a threatening nature and have been the cause of many laborers leaving their work, owing to their fear of the society. The matter has been placed in the hands of the authorities, who are attempting to trace the source of the letters.

Extensive roadway work is being planned for the coming season by the city of Lake Mills, Wis. It is proposed to construct a macadam roadway to the village of Millford and the effort will be made to have an extension built into Watertown.

The municipal stone crushing plant at Janesville, Wis., has been closed for the winter and the equipment overhauled, so that it will be in readiness for operations in the spring. According to the report of Superintendent W. E. Dulin, the output for the season was 7,094½ cubic yards, which was sold to contractors for 60 cents.

A recent decision of Judge Tarrant of the circuit court grants the motion of the Eden Independent Lime & Stone Company, of Eden, Wis., to be made party defendant in the case of the Union Lime Company against the Chicago & Northwestern Railroad, and grants the motion of the now joint defendants for a new bond to be executed by the plaintiff. The case, which has gone to the Supreme Court of Wisconsin, is for the determination of the question as to whether the Northwestern road has a right to build spur tracks which at present terminate at the buildings of the plaintiff. The plaintiff, contending that the addition of a spur would work them irreparable damage, secured an injunction restraining the building of the spur, after the railroad commission had decided that it be built.

That Milwaukee can save 75 cents a square yard in the construction of permanent pavements by utilizing the existing macadam pavements as a foundation is the opinion of Charles A. Mullen, superintendent of street construction and maintenance. Mr. Mullen's plan is to lay a thin coat of concrete over the present surface before laying the wearing surface. He says that the plan has been tried out successfully in London, New York and Chicago.

New York Cement Show Makes Big Hit

Visitors from all Parts of the World—Eastern People Had Cause to Marvel at Wonders Displayed in Madison Square Garden.

All doubts as to whether the show would be a success vanished after the first half hour, as the crowds became very dense on the first floor and the balcony, and many elected to view the wonderful exhibition from the seats in the gallery, where the general ensemble, the glare of the electric lights, the humming of the machinery and the sweet strains of music all combined to make a great spectacle. At either end of the hall large painted canvases showing beautiful scenes were placed, covering up the walls. To attempt to mention the various exhibits in detail is obviously impossible, but we will mention the more prominent ones and point out the most striking and original displays. Generally speaking, the show was superior to any that has been previously given by the Cement Products Exhibition Company.

President Edward M. Hagar came in for congratulation on all sides. Captain L. L. Fest, of Chicago, who directed the actual work of building the booths, also came in for his share of the praise. The New York public and incidentally the entire East—for many delegations came from all points in this section—were thus given the advantage of the experience gained in the past in arranging and assembling the show, as Captain Fest had also had charge of the Chicago Cement Shows.

The concrete products displayed were far in advance of anything ever seen before. Every kind of machinery used in the manufacturing of cement and concrete was shown. Many of the booths gave practical demonstrations.

Show Seen by Feminine Eyes.

Cement is King! So read the inscription on the exquisitely modeled statue which greeted the eye at the entrance of New York's first great Cement Show.

To the average woman visitor—who had probably been coaxed into viewing the exhibits by a practical husband—or to the woman who had been allured by the music of the inimitable Sousa and his band the phrase, "Cement is King," may seem a trifle overdrawn, perhaps too poetical for so substantial a product.

As she advanced, however, on her tour of the Garden her interest was more and more potently evidenced as the practical application of the cement industry to her own home and its betterment dawned upon her.

From the viewpoint of the New York woman, the Cement Show was indeed a revelation.

Masculine minds appreciate the constructive features of the exhibits, the fireproofing, the steel reinforcing—everything that tends to strength and service. Women, while perhaps influenced by these qualities, demand also something that will please the eye and delight the aesthetic sense, which even in a suffragette is seldom lacking. It is safe to say that the most prosaic mind must have been impressed by the beauty and the dignity of the exhibits and their artistic environments.

Imagine the great vaulted roof of the Garden effectively draped with soft folds of green and pure white, unconventional and artistic contrasting design, making the vast proportions of the Garden even more majestic and magnificent than their famous architect intended them to be. Directly opposite the entrance the famous Sousa and his band were stationed in a semicircular balcony, draped with our national colors. Great canvases, painted by a master of the scenic art, depicted rural beauties and added to the attractiveness of the background.

A peculiarly pleasing feature of the Cement Show lay in the absolute uniformity of the exhibits. The



PRESIDENT E. M. HAGER OPENS GREAT SHOW.

Garden had been transformed into a miniature "Cement City" with boulevards and avenues brilliantly illuminated and thronged with people. The diversity of the exhibits as well as their beauty, their utility as well as their novel charm, held the interest of every passer-by. Stately columns of concrete divided the floor space into symmetrical sections, equal in every proportion, and lighted by triple clusters of arc lamps. These, in conjunction with the usual superb lighting equipment of the Garden, made the scene a particularly brilliant one.

Walk through the broad aisles and view the thousand and one wonders at the exhibit. Here were tiny model dwellings with sanitary and artistic features reproduced in minute detail. Here a gorgeous panorama of a cement mill showed not only the actual working of the plant and its shipping facilities, but the surrounding country as well in various lights and colors, which changed constantly and were exquisitely blended in most natural effect.

Here a monster crusher or conveyor in full operation attracted a throng. Next a miniature farm, with house, barns, pig-pens, corn-cribs and every possible building that a well-equipped modern farm could demand; all were shown in concrete construction.

Most beautiful of all exhibits were those which showed the artistic possibilities of cement. Classic fountains modeled with all the art that characterizes the productions of the most famous sculptors could be seen in the purest of white cement. Stately columns and pedestals, garden benches and beautiful tables, sun dials and vases, flower boxes and urns, as well as the most exquisite statuary, were there. Gripping gargoyles, fascinating elves, coquettish cupids, grotesque dragons, every famous type of antique and modern decorative art, all were shown, and in every detail were as perfect as though wrought in the Carrara marbles of Italy.

Color was not wanting in the exhibits, for cement lends itself most admirably to the soft green tones so favored for garden decoration, and to the warm red and brown hues used in decorative architectural works. Like a bit of old Nuremberg was a circular bas-relief tinted by some truly artistic old German visitor who, enchanted by its beauty of modeling, asked permission to tint it with some especially fine pigments, which he had years ago learned how to use in the quaint old German city.

The Cement Show was a show that will be remembered for its instructive features as well as for its artistic qualities. Every woman who attended it will build "castles in the air," and every castle will be of concrete products! The woman of means who is fortunate enough to own a country estate will plan Italian gardens, a pergola, or some other artistic improvement for her property.

The woman whose ambition is to own a cozy home in some suburban section will start to draw floor plans of her "concrete house," and dream happy dreams of a cement cottage that will boast of a red cement tile roof and a spotless kitchen laid in ce-



CARTOON OF NEW YORK SHOW.

ment tiles. Fond fancy may even add cement window boxes, glowing with scarlet posies.

For the woman who dwells in a city flat and whose children attend great public schools, the safety of cement construction especially appeals.

Cement is a product as Universal as steel, as strong as Atlas, as mighty as Vulcan, as lasting as the Pyramids, the Alpha and Omega of all construction material.

Yes, "Cement is King," the ruler of a kingdom as safe, as stable, as stupendous and as everlasting as the product itself—the Kingdom of American Homes.

THE EXHIBITS

F. H. Angel, the pulverizing expert of the Jeffrey Manufacturing Company, of Columbus, O., was on hand with his famous hammer mill. The exhibit also comprised screw conveyors, elevators, and other appliances useful in cement mills and, in fact, all kinds of manufacturing plants. Mr. Angel said business was good and looked the part, with a lot of people around him all the time.

The exhibit of the Edison Portland Cement Company attracted a great deal of attention on account of the extreme simplicity of design and the real educational features in connection with cement uses about the house. The suggestion of a livable dwelling of bungalow design was happily carried out by electric lighting effects, the general scheme conveying the idea of an open fire in the hall and soft yellow lights of pleasant shading in the living

Samuel H. Lea, of Pierre, South Dakota, State Engineer for South Dakota, was among the first delegates to arrive.

K. O. Truell, representing the Calloseus Cement Co., of Buffalo, was a caller at ROCK PRODUCTS' booth. Their new brand will be known as "Collos."

Charley Bradley, from Rock Rapids, Iowa, had the Anchor Block Machine in actual operation. No well regulated, first class cement show would be complete without Mr. Bradley.

William S. Munro, representing Candee, Smith & Howland Company, of New York, was an interested visitor. His firm is one of the largest handlers of builders' supplies in the metropolis.

Gordon Willis, of St. Louis, member of one of the largest cement selling concerns in the country, spent the week in New York and gave a large part of his time to the convention and the Cement Show.

L. Sturtevant, of the Sturtevant Mill Company, Boston, Mass., had on exhibition their well-known line of grinding mills, including the open-door mill, ring roll mill, the newago screen, besides crushers and rock breakers of all kinds.

The American Steel & Wire Co.'s exhibit at the end of the hall was one of the best in the hall and showed the actual application of their famous triangle mesh. They presented to the engineers and contractors a sliding rule calculator which fits the pocket.

Merrill Watson, long and favorably known to the cement users as first vice-president of the National

The Cement Tile Machinery Co., of Waterloo, Iowa, exhibited their drain tile machine for the first time in the east. It was the center of much interest.

The Universal Portland Cement Company had a model of its plant at Pittsburg. It was a unique exhibit and one calculated to interest the general public.

H. W. Logan, of F. L. Smidth & Company, the well-known engineers, was in charge of their most interesting exhibit at the show. They have recently issued a pamphlet of great interest to cement manufacturers.

Robert W. Hunt & Company, the well-known engineers and inspectors of cement, were making tests at booth 172. Riehle Brothers' testing machines were used. Those in charge were John J. Cone, J. C. Ogden, J. F. Davis and W. E. McClintock.

Wadsworth, Howland & Company, of Boston, had a most interesting exhibit showing the various uses of their colored waterproofing. Hector M. Gordon, the sales manager, was in charge, assisted by J. H. Thompson, of the New York office, and C. J. Hunt and L. L. Turner. A. T. Felton, the vice president and general manager, was there also.

J. Frank Norris, of Rochester, N. Y., whose high reputation of "Norristone" has been won by using the "Hercules" block machine and other equipment, was a constant attendant at the show. He made all of the work shown in the exhibit of the Century Cement Machinery Company of Rochester, which was one of the best.

W. C. Runyon, of the Lake Erie Builders Supply Co., Cleveland, Ohio, was one of the regulars in attendance at the New York cement show. He reports a steady growing business in builders' supplies, and says he learns a lot of things at the big cement shows, which he has attended regularly since the Cleveland meeting three years ago.

The Knickerbocker Portland Cement Company, who are now building a big cement plant on the Hudson River, had a booth on the balcony in charge of Thomas M. Magiff, traffic manager, and incidentally one of the most striking figures in the industry. A beautiful concrete lamp was the *piece de resistance* in the display.

The Alpha Portland Cement Co., of Easton, Pa., started things off with a rush. The following members of the company were in attendance at the booth: A. F. Gerstel, president; J. B. Wright, manager of the New York office; L. H. Carr, E. T. Gregorie and H. A. F. Kelm, all of the New York office; Edward Hennessy, Easton, Pa., general sales manager, and E. P. Williams, Easton, Pa.

One of the most interesting Cement Show exhibits to persons interested in recent developments in cement manufacture was shown by The Colloseus Cement Company, 26 Beaver Street, with plant at Buffalo, N. Y. "Collos," although not a rotary kiln cement, is demonstrating in practical use that it is equal and in some respects superior to the standard Portlands. The officers of the company are practical Portland cement manufacturers and appreciate the importance of producing a high-grade product at minimum cost.

R. Cathcart, of Cleveland, Ohio, was in charge of the Glidden Varnish Company's exhibit at booth No. 255. J. F. Glidden, of Cleveland, and W. C. Clifton, of the New York office, were receiving visitors at this booth. The Glidden Varnish Company showed their paints on concrete slabs, brick and exterior cement surfaces. The colors were true and make a beautiful relief to the plainness of a concrete surface in modern concrete building construction. They also showed some artistic interior finishes on beaver board.

Have you heard Rosebery explain the merits of the "Milwaukee" mixer? His real name is W. J. Rosebery, Jr., but everybody knows him as just Rosebery, the man who is an expert in the mixer business. The big "Milwaukee" mixer, made by the Milwaukee Concrete Mixer & Machinery Company, Milwaukee, Wis., operated at booths Nos. 157-158. In addition to Mr. Rosebery the other representatives at the booth were: Mr. McKenna, Cleveland (Ohio) representative; H. Ehrenberg and J. C. Hendricks, both of the New York office of the company.



RESIDENCE OF W. R. HOSLER, CIRCLEVILLE, OHIO. FINE SAMPLE OF PORCH WORK DONE WITH SIMPSON MOLDS.

rooms. David M. Ash, 1 Madison avenue, New York City, was the architect. The cement stucco and columns were made by H. W. Miller Company, 501 East Twenty-second street, New York. The floor tiling by Roland Taylor, 520 East Twentieth street; floral treatment by The Rosary Company, East Thirty-fourth street. The work was done on the job.

The Vulcanite Portland Cement Company's booth was an educational display of a large variety of colored surface finishes without the use of artificial coloring matter. The two three-foot jars were full of water and were of beautiful texture and color, thus refuting the criticism of those unfamiliar with concrete that concrete is damp and of a dead color. Properly mixed, concrete is damp proof and can be made beautiful. The panels shown were the idea of Albert Moyer, the sales manager of the company, and illustrated a paper he read three years ago at the Cleveland meeting of the National Association of Cement Users.

Association since its institution, mingled with the throngs about headquarters. Although suffering with a cold, his interest in the work of this great convention kept him in his familiar place.

The Simpson Cement Mold Co., of Columbus, Ohio, who enjoy the distinction of having an exclusive specialty in which they have so excelled as to completely cover all requirements, had a very fine display of porch columns, balustrades, and other ornamental accessories. Harold G. Simpson and a full corps of assistants were in charge of the exhibit.

The Eureka Stone & Ore Crusher Company, of Cedar Rapids, Ia., had a very interesting display consisting of four Mitchell improved crushers in actual operation crushing gravel and trap rock. Leroy A. Kling, the sales manager of the company, was in charge, and did a nice business, having made a large number of sales. Mr. Kling stopped at the Cornell University Club while in New York.

Wm. Donaldson, of Dunsleith, N. D., makes blocks and tombstones and expects a good business in 1911.

F. K. Johnson, of New Brighton, Conn., one of the wheelhorses in the association life in the East, spent Friday at the show.

W. M. Kinney, of the technical staff of the Universal Portland Cement Company, demonstrated a wonderful little machine that has recently been de-

A. Edward Richardson came up from Flushing to see the high buildings and caught on to a lot of new information on concrete construction.

Walter G. Hay, of Hay & Peabody, Portland, Me., came down to gather up the latest news on cement products. He is a specialist in cement vaults.

Paul C. Grenning, in the concrete block and brick business, New York City, visited the booths in the show.

Milton J. Williams, of Chicago, who is famous in the cement field by reason of the pulverizer that bears his name, greeted a host of friends in the trade.



HIGH ART IN CEMENT.

J. H. Connelly, of Jersey City, N. J., contractor and builder of that place, was a visitor at the show. He has been building frame houses principally, but expects to go into the cement line.

Fedele Milani and his son, who are masons and general contractors at Hamilton avenue, Hasbrouck Heights, N. J., examined the exhibits with a very critical eye, as they are both practical men.

O. E. Swift, of the Swift & Upson Lumber Company, of New Brighton, Conn., enjoyed building materials from a new angle after visiting the exposition.

James Lawrence Bernard, the Boston representative of Edison cement, took part in the great show in a real dignified "Hub" kind of way. Mrs. Bernard took in the sights of the show as her first experience of the kind.

J. F. Kellas, assistant engineer of construction of the New York, New Haven & Hartford Railroad, New Haven, Conn., attended the show. Mr. Kellas said: "We do a lot of cement and concrete work and I want to say that this is a splendid show."

Arthur W. Bootroyd, of 42 Bay View Terrace, Newburgh, N. Y., called at Rock Products' booth.

I. Whiting, of the Ansonia Trap Rock Company, of Ansonia, Conn., expressed enthusiasm over the exhibits of manufactured stone.

S. L. Bell, the well-known builders' supply man, of St. Paul, came a long way to see the show, but he expressed himself as well paid for all his trouble.

J. W. "Pennsylvania" Stinson was there from Boston. He took care of the New England folks who were doing the show.

B. J. Mitchell, manager of W. S. Humbird, Inc., of Niagara Falls, N. Y., was a new man at the show, but he mixed well.

Leslie J. Bennett, of cement fame at Buffalo, was as usual wearing his Sunday clothes in dear old New York.

Wash. Harder, of the Hartman Cement Company, Philadelphia, had a good time showing a host of friends about the big show.

George S. Emerick, of cement machinery fame, was there. He attends all the cement manufacturers' meetings and is known wherever cement is manufactured.

J. J. Urschell, accompanied by Mrs. Urschell, of Toledo, Ohio, spent the week visiting the customers of the Urschell-Bates Valve Bag Company and the Woodville Lime & Cement Company.

Wm. Stanford, of J. & S. S. Thompson Company, dealers in building materials at Elizabeth, N. J., spent Friday at the show. The J. & S. S. Thompson Company has been doing business since 1842.

James Maher, of The Maher Brothers Corporation, handlers of builders' supplies at Greenwich, Conn., admitted that the county fair wasn't in it with the Cement Show.

Maynard Klement, representing the Charles L. Pitts Company, prominent concrete contractors and roofers, of Newark and Jersey City, N. J., spent one afternoon at the show and said it was well worth the admission.

veloped for sampling the product of cement mills. It is an eccentric pipe centered so as to revolve and pick up about a teaspoonful of material with each revolution, thus at regular intervals taking the uniformly measured sample.

Joe Miller, of the Lawrence Portland Cement Company, can tell of the days when 75 barrels a week from two-pot kilns was considered the proper kind of an output for a cement mill. More than 10,000 barrels per day are made at the same mill.

W. C. Davis, of the Sitterding Davis Co., Richmond, Va., was an interested visitor at the show.

C. H. Stannard, manager for Marion Mallen, builders' supplies, came all the way from Newport, Ky., to see the New York show.

William Snaith, secretary of the Canadian Cement and Concrete Association and manager of the Third Annual Cement and Concrete Exhibition, announced that this exhibition will take place in Toronto, in the St. Lawrence Arena, from March 6 to 11, 1911.

J. H. Corbett, of Corbett & Raymond, of North Yakima, Wash., reported a new masonic building in his town is under construction. It is 12 stories high. Corbett is a good Westerner now, but he was glad to see the old folks and complimented the show.

The Kelly Island Lime and Transport Company entertained the friends of Tiger Hydrate. Harry A. Brocas, the manager of the New York office, had the most wonderful barrel of lime ever seen. It produces anything you like. O. H. Lirst, of the Cleveland office, arrived to help tell of the good features of Kelly Island Lime.

W. S. Mallory, president of the Edison Portland Cement Company, says that all the cement plants will finally see the wisdom of closing down the plants on Sunday. Like the long kilns, they will finally all come to it. Mr. Mallory proved by actual figures that, despite the closing down or stopping of the kilns on Sunday, they made more cement than ever before.

Standard sand for the testing laboratory is not the least among the necessary supplies of the cement mill and the engineer's equipment. It is made by the Ottawa Silica Company, of Ottawa, Ill. Their booth at the Garden was right next to Rock Products, in charge of genial Chas. B. Herring. Some of the ladies thought the samples of standard sand were granulated sugar, some others only made a pretense of this in order to have the handsome salesman of the company, F. A. Gebulke, tell them different.

Mr. Bootroyd is a well-known builder.

D. McCool, president of the Newaygo Portland Cement Company, was among the early arrivals.

The Norfolk Portland Cement Corporation was represented by R. E. Griffith, the president.

Martin Fleming and T. Behan, manager of the Youngstown Artificial Stone & Construction Company, both of Youngstown, Ohio, were doing the show.

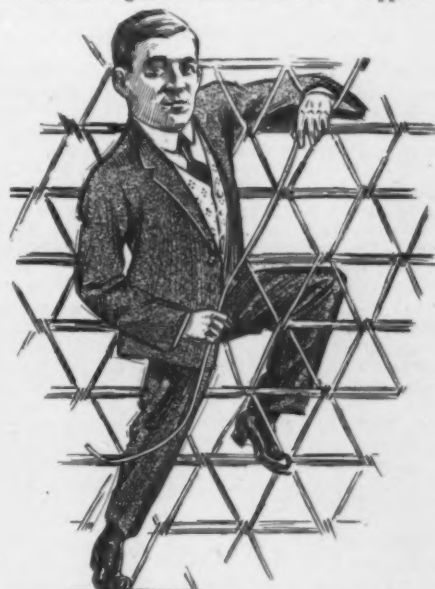
John B. Lober, president of the Vulcanite Portland Cement Company; Albert Moyer, their affable sales manager, and W. R. Dunn, superintendent, were here for the meeting.

Fredrik E. Paulson, of the Lehigh Portland Cement Company, manager traffic and sales at Indianapolis, was on hand with Bert Swett, but minus that barrel of apples.

Some of those representing the Universal Portland Cement Company were: E. M. Hagar, B. F. Affleck, B. H. Rader, Maurice Metcalf, C. W. Boynton, W. M. Kinney, C. K. Arp, C. M. Powell and others.

It is good to see some of the far western people. Adam L. Beck, of the Oklahoma Portland Cement Company, Ada, Oklahoma, reported business quiet, but they have had a good year, although not as much cement has been used in that section as usual.

A. F. Shafer, of the Kellam & Shafer Company, cut stone contractors, and also treasurer of the Union Paving Company, accompanied by Walter Mishler, both of Schenectady, N. Y., were at the show. Kellam & Shafer also manufacture "Old Reliable" wall plaster, are large paving contractors and handle a general line of builders' supplies.



HARRY S. DOYLE, OF CHICAGO, WITH HIS TRIANGLE MESH REINFORCEMENT.

Among the happy representatives from the Wolverine State were: J. W. Shove, the secretary of the Cowham System, and J. A. Myers, of the New Aetna Portland Cement Company, of Fenton, Mich. He says that their mill is still running and is one of the few in Michigan making cement at this time of the year.

E. E. Handel, inspector of cement tests in New York City, spent all the time he could visiting the show. Mr. Handel says cement is his hobby and although he has been working along this line for the past fifteen years he is beginning to feel that he is just getting the first principles of a great subject and is learning something new every day.

W. F. Danzer, of W. F. Danzer & Company, general contractors, of South Bethlehem, Pa., visited the show and said it was a great display of cement and its capabilities. Mr. Danzer went to Europe two years ago to attend a gathering of cement men, but he says this country in many respects is ahead of Europe in the cement line.

A. A. Pauly, of Youngstown, Ohio, the celebrated inventor of the concrete tile machinery and system of manufacture, reports that no other city in the United States can show an equal ratio of concrete construction compared with the population. One thousand permits were issued, 100 of them being constructed of Pauly tiles exclusively for all the walls, etc., and 100 more used the same goods to a considerable extent.

The exhibit of the Dexter Portland Cement Company, Samuel H. French & Company, sole sales agents, was at booths No. 199 and No. 200, and showed some of the many uses to which cement can be put in producing pleasing garden effects. The main feature was the arbor or pergola running the entire length of the exhibit. It consisted of six pillars with satyr heads supporting the beams and crosspieces, which showed the natural wood finish, rough hemlock boards having been used for the forms. The grain was brought out so plainly that it was difficult to convince many of the visitors that it was not wood. Tables, garden benches and chairs were placed around the pergola and lions supporting shields showing the Dexter label guarded the entrance. A background was provided by a wall showing the stucco finish, with colored labels on each side.

The American Cement Co., Philadelphia, Pa., had booth No. 268 with decorations made with "The Old Reliable Giant Portland Cement." Among those who were in attendance at the booth were: W. E. Sales, P. J. Donovan, Frank Murphy and Harry Kroll, all of New York City, and C. M. Camm, Philadelphia, Pa.

The Eureka Stone & Ore Crusher Company, of Cedar Rapids, Iowa, had a very interesting display consisting of four Mitchell improved crushers in actual operation crushing gravel and trap rock. Leroy A. Kling, the sales manager of the company, was in charge, and was doing a nice business, having made several sales.

The Ohio Post Mold Company, Cleveland, Ohio, had an exhibit at booth No. 261. The company was showing some of its fence post molds and the work it will do in producing reinforced fence posts. E. S. Smith, Toledo, Ohio, was in charge. Others at the booth were A. M. Smith and O. C. Maurer.

Harry B. Warner, favorite son of the Portland Cement industry, has got a new line of short droll stories that he cooked up down in Baltimore especially for the cement show. Incidentally, Security cement and Berkley lime are well represented.

The Allentown Portland Cement Co., Allentown, Pa., had booth No. 271; E. M. Cadwalader, manager of the New York City office, was in charge. P. B. Beery, Allentown, Pa., the general sales agent of the company, spent some time at the booth.

The Marsh-Capron Manufacturing Company, of Chicago, had a display consisting of their well-known mixers. It was in the center of the hall on the main floor and engaged the attention of the leading engineers and contractors.

The Kelly Island Lime & Transport Co. were well represented at the show. The exhibit was in charge of H. A. Brocas, assisted ably by O. N. List and Allen P. Lockwood. A. Y. Gowan was over and also Lawrence Hitchcock.

Charles H. McCarthy, eastern sales manager of the Cyclone Drill Company, was in charge of their display, which was in the basement of the hall.

Chas. J. F. Cordes, of Waldick, N. J., showed a new block machine in the basement.



ALBERT MOYER, SALES MANAGER VULCANITE PORTLAND CEMENT CO., NEW YORK.



BENJAMIN F. AFFLECK, SALES MANAGER UNIVERSAL PORTLAND CEMENT CO., CHICAGO.

J. N. Hanson, secretary of the Charity Organization of Youngstown, O., was an interested visitor of the show on Saturday. He is a great friend of concrete construction, and first suggested the organization of the Modern Homes Company in that city, which is building homes for the people in strings of twenty to fifty houses in a group. All of these houses are being built entirely of concrete hollow tile, manufactured by the Concrete Stone & Sand Company, of that city.

Down in the basement at the center of the main hall was found the exhibit of the Kent Machine Company, of Kent, O. F. A. Kershaw, F. H. Merrill and A. L. Post were in charge. Besides the Kent continuous mixer they showed the feed demonstrator to prove that the mixer is a positive continuously operating machine of the highest type. The Kent mixer has years of solid profitable performance at its back.

Fred J. Morse, of Heath & Milligan Manufacturing Company, of Chicago, was here superintending the installation of his exhibit. Heath & Milligan make a line of cement coatings and waterproofings.

Robert A. Bachman, superintendent of the T. A. Edison laboratory, demonstrated the Edison poured house at the show.

A. J. Maynard, of Bridgewater, Mass., in charge of all the construction work at the Massachusetts State Fair, has never missed a convention of the National Cement Users. He liberally attributes a measure of his remarkable success in concrete lines to the educational benefits of the Association.

The Urschel-Bates Valve Bag Company had an exhibit in the basement to show the most approved method of bagging cement, lime, plaster, and all similar materials. From the big display of brands shown in the exhibit one readily sees that they have gained wide recognition.

George de Smet, the well-known cement man and specialist, of Chicago, took in the great show in connection with the waterproofing specialties he represents in the West. He is the Beau Brummel of cement in the great Chicago market.

Henry P. Boyd, of the National Builders' Supply Co., of Baltimore, Md., was at the Sewer Pipe Distributors' meeting at the Knickerbocker and incidentally taking in the show.

E. H. Belcher, one of the greatest demonstrators employed by the Barrett Manufacturing Company, New York City, was exchanging greetings with friends from the West.

The Queen City Concrete Manufacturing Company, 23 Sherwood street, Buffalo, N. Y., was represented at the show by A. A. Hamister and J. P. Dolan.

R. E. Bell, representing the McCormick Waterproof Portland Cement Company, met the big engineers and contractors at the show.

The Atlas booth consisted of a balustrade in the center of which was a niche representing "Art." Within this niche was a figure of Atlas supporting the world, this being made from Atlas White Portland Cement, representing strength. The balustrade in itself showed many surfaces and was a practical demonstration of the artistic effects possible to produce. Within the enclosure were two circular garden seats made of concrete and some beautiful vases and plaques made from "Atlas White." P. Austen Tomes, manager of the publicity department of the Atlas Portland Cement Company, was responsible for this beautiful exhibit and was in charge of it during the show. His genial smile and hearty handshake were bestowed upon all callers. He was ably assisted by H. V. R. Palmer, assistant manager of the publicity department; George Weisman and Fred Andrews, of the publicity department, and the following popular and enthusiastic Atlas boosters: E. D. Boyer, cement expert; C. A. Kimball, manager of sales; D. H. MacFarland, assistant manager of sales; C. C. Quincy, assistant manager of sales; A. J. Whipple, manager metropolitan division; F. S. Douglas, Abbott Heft, W. B. Tracy, F. A. McHugh, I. M. Comes, J. C. Meeks, H. V. Wyckoff, Walter Glass, C. H. Brigham, M. H. Horn, J. L. Cooper, J. D. Heck, G. H. Lundy, Walter Smith, C. A. Brigham, E. P. Hannum, F. B. McKenna, A. O. Stark, D. L. Fulton, E. P. Taliaferro, S. A. Putnam, W. M. Peterson, M. Regan, R. A. Wetzler, H. F. Dowd, F. E. Fotter, I. Lewis, John S. Thompson, F. S. Sellinger, A. H. Scott and C. J. Bradley. This aggregation divided time between the Atlas booth at the show and their headquarters at the Hotel Victoria, and all visitors were heartily welcomed at both places.

Isaac Murray, in charge of the new Philadelphia office of the Allentown Portland Cement Co., had in all probability the most Biblical appellation of any man at the Cement Show. He reported a whirlwind business in the Quaker City for his brand.

Kennedy Stinson, of Montreal, one of the foremost building material men of the Dominion of Canada, visited the show. He manufactures Paulty concrete hollow tile over the border and conducts extensive quarry operations.

Commodore J. W. Alker, "Billy Penn" Bale and T. M. Clukas, of Boston, were on the job. They were doing the show right.

John A. Miller, H. L. Blodgett and F. H. Hoover represented the Bath Portland Cement Company at the show.

George McDonald, of 146 Broadway, was looking around for improvements in his general contracting business.

(Cement Show Notes continued on page 49.)



J. U. C. MCDANIEL, SALES MANAGER CHICAGO AA PORTLAND CEMENT CO., CHICAGO.

SECURITY PORTLAND CEMENT

(Annual Capacity 700,000 Bbls.)

**BERKELEY HYDRATED LIME**

(A 20th Century Product)

BERKELEY LUMP LIME

(Carbonate of Lime 98.28%)

For Building, Chemical and Agricultural Purposes.

BERKELEY RUN OF KILN LIME

(For Agricultural Purposes)

BERKELEY GROUND LIME

(Fresh Burned Lime Uniformly Ground)

BERKELEY GROUND LIMESTONE

(For Manufacturing and Agricultural Purposes)

FLUXING STONE FOR BLAST AND OPEN HEARTH FURNACES

(Silica Less than 1 Per Cent)

CRUSHED STONE

(All Sizes)

For Railroad Ballast, Road Work, Concrete and General Building Work.

SECURITY CEMENT & LIME CO.

WESTERN OFFICES:

OLIVER BUILDING, PITTSBURG

MAIN OFFICES: EQITABLE BUILDING, BALTIMORE



Promptness
in shipments is of vital importance to the cement user whose storage capacity is usually limited and whose work is so frequently dependent upon weather conditions. The big output of this Company, our enormous storage bins, the location of our mills near large centers of population where abundant labor may be had, where large car supplies are available, where connections with the numerous railroads entering Chicago and Pittsburg can be made readily—an efficient Traffic Department service—these form the basis of our reputation for quick shipments.

Universal Portland Cement Co.

Chicago—Pittsburg

Annual Output 8,000,000 Barrels

SALES OFFICE:
Liggett Bldg., St. LouisSALES OFFICE:
Long Bldg., Kansas City

MANUFACTURED BY

Union Sand & Material Co.ST. LOUIS
Liggett Bldg.KANSAS CITY
Long Bldg.MEMPHIS
Tenn. Trust Bldg.

THE
Standard Brands

OF
PORTLAND CEMENTLightest in Color
Highest Tensile Strength**ALWAYS UNIFORM**

Always the same high quality. Prompt shipment guaranteed and made possible, as each mill is located within switching limits of the two greatest railroad centers of the West. You are assured of your orders being promptly filled.



Tell 'em you saw it in ROCK PRODUCTS

LABOR SAVING MACHINERY versus HIGH LABOR COST



INCREASING competition in the manufacture of cement, demands the maximum efficiency in its production. The rapidity of development of the cement industry is due in great measure to the efficient methods adopted by the manufacturer.

"S-A" Conveying and Screening Machinery

by its efficiency and reliability has helped hundreds of manufacturers to produce cement at a lower cost and of a better quality.

Let Us Also Help You!

Stephens-Adamson Mfg. Co.

Branch Offices:
164 DEARBORN ST., CHICAGO, ILL.
50 CHURCH ST., NEW YORK, N. Y.

Aurora, Illinois



MILL:
Kosmosdale,
Kentucky



Kosmos Portland Cement Co.

RELIABILITY

C
O
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R

WAR DEPARTMENT
ENGINEER OFFICE, UNITED STATES ARMY.

Nashville, Tenn., February 20, 1909.

KOSMOS PORTLAND CEMENT COMPANY,
Louisville, Ky.
Dear Sirs:—Replying to yours of the 12th instant, I beg to advise you that our records show that 22,250 barrels of Kosmos cement were received at Hales Bar, Tennessee River, for the lock under construction at that point, between June 23 and September 25, 1908. All of this material was tested and all of it accepted under the requirements of the Engineer Department specifications.

Very respectfully,
WM. W. HARTS,
Major, Corps of Engineers

A Destructive Fire Prevented the Completion of the 100,000 Barrel Contract. The Rebuilt Mill is Fire-Proof.

It is universally recognized that no tests are more exacting than those of the War Department. A record of uniform acceptance, such as the above, is the best assurance to the purchaser of the unvarying quality of KOSMOS cement. It is a **FACT**—more convincing than any amount of TALK.

ASK FOR QUOTATIONS

Kosmos Portland Cement Co.

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SALES OFFICE:
Paul Jones Building,
Louisville



Tell 'em you saw it in ROCK PRODUCTS

THE QUALITY THAT NEVER FAILS

Trinity Portland Cement

Your Cement needs can be supplied efficiently.
Daily capacity, 4000 barrels. Write to-day.

Southwestern States Portland Cement Company

GENERAL SALES OFFICE: 611 WILSON BUILDING

DALLAS, TEXAS

MEACHAM & WRIGHT COMPANY

CEMENT

CHICAGO



Saylor's Portland Cement

Oldest American Portland
Used by the United States Government since 1876

COPLAY CEMENT MANUFACTURING CO.

SALES OFFICES:

Fifth Avenue Building,
NEW YORK CITY


Pennsylvania Building,
PHILADELPHIA

The Magnesia Peril

Do you not know that more than 1½% of Magnesia in Portland Cement is dangerous? It is! Then, do you not know that much of the Portland Cement on the market to-day runs away above the 4% limit—even as high as 6%? Well, it does! Do you not know that the United States Government is making long-time tests of various Portland Cements? Such is the case! And, do you not know that every high-magnesia Portland Cement being tested has shown a great loss of tensile strength almost from the start? This is the truth! Why not be on the safe side—you engineers, contractors, dealers, and users generally? Some smart lawyer may find that you used high-magnesia cement—and then what? Superior has only a fraction of 1%. It's safe! Booklet "C-7" tells why.

Union Trust Building, Cincinnati, Ohio

The Superior Portland Cement Co.



THE USE OF


1% MAUMEE

Compound Guarantees
Water-tite Concrete

Write for information,
samples and prices

THE MAUMEE CHEMICAL CO.
403 St. Clair Building
TOLEDO, OHIO

TRADE MARK.



SEE OUR EXHIBITS:

NEW YORK CEMENT SHOW, SPACE No. 132
December 14-20, 1910

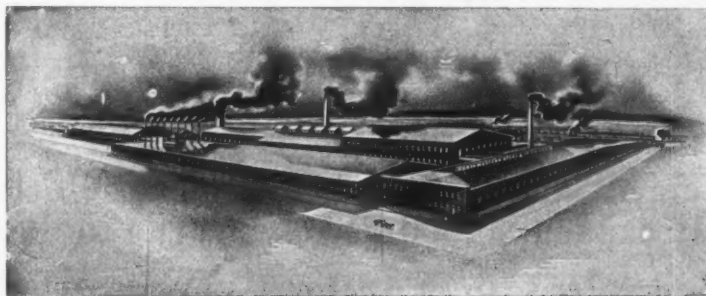
CHICAGO CEMENT SHOW, SPACE No. 11
February 17-23, 1911

Tell 'em you saw it in ROCK PRODUCTS

Wholesale Prices

Block Machines,	\$10 to \$250
Brick Machines,	18 to 47
Mixers,	22 to 500
Porch Column and	
Baluster Outfits,	15 to 60
Cap and Sill Moulds,	11 to 25
Lawn Vases,	15 to 25
Ball Moulds,	2 to 17
Grave-stone Moulds,	7 to 69
Well Curbing Moulds,	4 to 7
Drain and Sewer Tile	
Moulds,	6 to 83
Block Cars,	11 to 17
Fence Post Moulds,	7 to 12
Gasoline Engines,	40 to 500
and dozens of other articles such	
as Trowels, Pointers, Tuckers,	
Rollers, Groovers, Levels, Shovels,	
Wheelbarrows, etc.	

We figure our prices at so much per pound and charge no fancy prices on account of patents, territory rights, etc.



1911 Announcement

Our 1910 catalog of concrete machinery will be the most magnificent publication of its kind ever issued. It will describe the entire line of "Northwestern" Concrete Machinery, molds and tools. It will contain hundreds of beautiful half-tone engravings taken from actual photographs. It describes everything in the concrete machinery line and is an encyclopedia of what you ought to have at prices you ought to pay. It is valuable as a reference book, whether you buy our machinery or not.

Northwestern Steel & Iron Works

Ask for Catalog C

Eau Claire, Wisconsin

Box 902

We Are Concrete Machinery Experts

We are distinctly manufacturers and own and operate the largest factory of its kind in existence. During 1910 we have added to our plant another foundry, 200 ft. long by 100 ft. wide, giving us room for one hundred additional moulders. We have also added three new buildings to our manufacturing plant and very extensively to our machinery equipment.

Besides the Northwestern line, we manufacture complete lines of several other large concrete machinery concerns, and we are in the market for manufacturing propositions of this kind at any time. With a moulding capacity of fifteen tons of iron per day in our foundry, and a floor space of over one hundred thousand square feet in our shops; with a large force of pattern makers, moulders and machinists who are experts in this business, we are naturally in a position to negotiate for the largest contracts.

Our Wholesale Catalog is at Your Disposal

We want everyone interested in concrete machinery, to have one of these catalogs. Send us your name and address and state what particular machines molds or you are interested in.

FISHACK WALL PLASTER—"Of Course"

The Reasons:

Good Material
Prompt Service
Fair Treatment
Practical Experience

The Results:

Satisfied Dealers
Steady Customers
Increased Sales
Profitable Business

"Send Us An ORDER and Let Us Prove it."

THE FISHACK GYPSUM COMPANY

PLASTER MILLS:
TOLEDO, O., and FT. WAYNE, IND.

General Office:
TOLEDO, OHIO

GYPSUM MINES AND MILL
GYPSUM, OHIO

We Manufacture a Full Line of Hard Wall Plasters and Gypsum Products

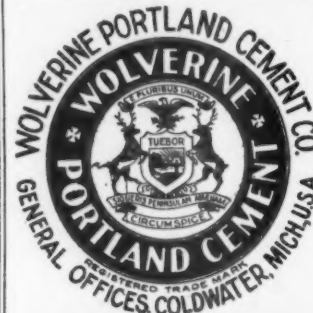
Specify and Use

EDISON PORTLAND CEMENT

IT IS FINE

85 per cent thru 200

98 per cent thru 100



"WOLVERINE"

The Alright Cement

MADE RIGHT SOLD RIGHT
WORKS RIGHT
WEARS RIGHT

The Best Is None Too Good For You.
Insist Upon

"WOLVERINE"

Write for Booklet and Quotations.
Factories at Coldwater and Quincy, Mich.
Capacity 3500 Daily.

WOLVERINE PORTLAND CEMENT COMPANY

W. E. COBEAN, Sales Agent,
Coldwater, Michigan

Main Office, Coldwater, Mich.

Tell 'em you saw it in ROCK PRODUCTS

CEMENT SHOW REVERIES.

By Gordon Wilson.

Say, friend, ain't it great, when from early till late
 You've been standing and standing all day,
 When your feet are all tired and your vim has expired,
 While your thoughts wander idly away,
 To have some wise guy with a cold fishy eye say,
 "It must be a pleasure for you to come down here,
 my friend
 With a fat roll to spend and see life for a fortnight
 or two."

Well, of course, he doesn't know that the money you
 blow

Isn't lavished on ladies and wine,
 He may not understand that all day you're on hand
 Explaining and boosting your line,
 And how every night when they put out the light
 You make tracks for your bed right away,
 For you know, sure as fate,
 If you should stay up late
 You would die in your booth the next day.

The Lawrence Cement Company showed a good
 concrete railroad tie.

William Price Miller, of the Northwestern Expanded Metal Company, says they will make a display at the Chicago show.

John Chalmers and Thos. S. Safford, of the West Jersey Bag Company, of Newark, N. J., were shaking hands with their cement customers at the show.

Walter R. Brown, the general contractor of Foxcroft, Me., was getting information at the show. He says he will come every year if they have one.

We had a call Saturday afternoon consisting of J. C. Detweiler, G. L. Stewart and W. G. Dutton, of the Copley Cement Company. Incidentally they are all Saylor.

Addison H. Clarke, of the old-established firm of William Wirt Clarke & Son, dealers in building materials, Baltimore, Md., was enjoying the show to the utmost when last seen.

Jacob L. Tyson, one of the prominent citizens of Philadelphia, came over and spent a day at the show. He felt very much at home, as the Philadelphia delegation numbered a thousand or more.

Among the leading contractors noted was W. F. Gillette, of the Gillette Construction Company, of New Haven and Bridgeport, Conn.; Julius S. Jensen, of the Connecticut Company, and Harry Blanchard.

Tom Mannion has not forgotten how to do a good job of plastering, as is evidenced by the model house showing the various plaster finishes manufactured by the Monument Plaster Company, of Harrison, N. J., of which he is the vice-president.



DR. E. W. LAZELL, TECHNICAL STAFF OF THE CHARLES WARNER CO., WILMINGTON, DEL.

A. A. Adams, superintendent of streets, was among a delegation from Springfield, Mass.

C. M. Lauritzen, of the Raymond Impact Pulverizing Company, of Chicago, was busy as a bee all the time.

F. N. Kinney, manager and treasurer of the Hyde Park Supply Company, Hyde Park, O., visited many of the exhibits.

Alexander Reed, of the American Wood Preserving Company, 165 Broadway, New York, saw much to interest him at the show.

W. E. See, 416 West Lafayette avenue, Syracuse, N. Y., concrete block manufacturer, was at the show seeing what he could see.

Bonney Brothers, of Passaic, N. J., manufacturers of concrete blocks, were interested visitors to the show and got a few pointers.

Horace Trumbauer was among the leading Philadelphia architects noted in the throng of distinguished visitors from the Quaker City.

The Harold L. Bond Company, of New York and Boston, have an interesting display of concrete workers' tools. Mr. Bond was there from Boston for a few days.

W. H. Kellogg, of the Connecticut Adamant Plaster Company, of New Haven, Conn., was among the plaster experts at the show. He enjoyed every minute of his stay.

J. Turley Allen, of the well-known firm of James T. Allen & Son, plasterers, of Philadelphia, Pa., helped swell the crowd. The plasterers are evincing almost as much interest in the show as the concrete men.

J. U. C. McDaniel, of the Chicago Portland Cement Company, was at the show Saturday, taking it in leisurely and greeting his many friends in the business. Mrs. McDaniel is also here and they have been enjoying the sights of the metropolis.

P. H. Hansen, secretary of the Ceresit Waterproofing Company, expressed his greatest satisfaction with the New York Cement Show. The interest of the visitors seemed very keen, and it keeps the men in their booths busy giving information about their product, Ceresit waterproofing.

M. J. Williams, of the Williams Patent Crusher & Pulverizing Company, of Chicago and St. Louis, attended the show in the interests of his company. He had a good time, because he didn't have to bother with the booth, and when last seen was shaking hands right and left with his many friends.

Jarvis Hunt, of Chicago, the great master of plastered exterior treatment, visited the Cement Show. Mr. Hunt is one of the few architects who fully realizes all there is in cement as a plastic. Country estates and suburban homes under his magical touch become works of high art.

H. A. Johan, of the Tayler Iron & Steel Company, arrived Saturday noon. He had been coming to New York for almost a week, for he was in Kansas and never struck a train that was on time. He even collected from the New York Central for being late. But he had to spend the money the minute he arrived, as there was a bunch waiting for him.

J. C. Van Doorn, of Minneapolis, extended the glad hand to the people from the great Northwest as they filed past the Universal's fine display.

J. W. Johnston, 2261 Walton Avenue, construction superintendent for the Bronx district, was a visitor to the show. He said he saw much that was interesting to him.

C. R. Knapp, of C. R. Knapp & Co., builders of concrete houses and bungalows, in the Builders' Exchange, Philadelphia, was a member of a large delegation which came up.

Fred R. Bickelhaupt, representing George Rodele & Sons Company, of Cleveland, was at the show. As everyone knows, his firm is doing some of the finest concrete work in this country.

Kennedy Stinson, of Montreal, one of the foremost building material men of the Dominion of Canada, visited the show. He manufactures Pauly concrete hollow tile over the border and conducts extensive quarry operations.

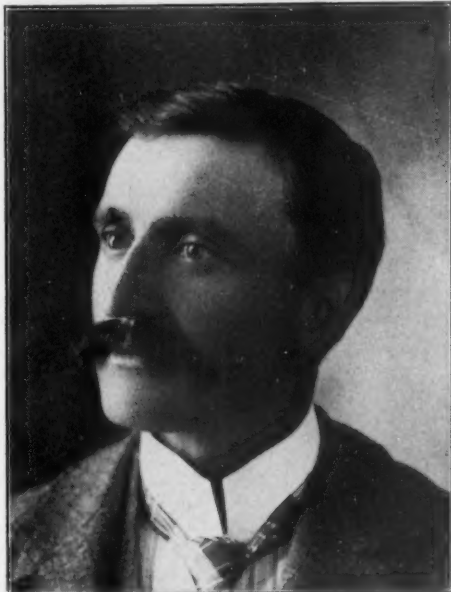
A. Wenzel, who has a large farm near Harrington Park, N. J., was a visitor at the show. He said he came to see what strides had been made in the building line and that he was wonderfully surprised. Mr. Wenzel uses a considerable quantity of cement annually on his farm.

M. A. Reeb, the big builders' supply man and plaster manufacturer from Buffalo, N. Y., was there. He was accompanied by William K. Squier, manager of the Paragon Plaster Company, of Syracuse. Both were very much interested and expressed themselves as highly gratified at the wonderful exhibition.

Geo. B. Bennett, of Geo. B. Bennett & Company, Asbury Park, N. J. (the city by the sea), general mason contractors, came over to attend the show. Mr. Bennett says that everything is on the increase in the cement line in his territory and a few more shows in the East like the New York Show will help the situation a great deal. Mr. Bennett does a great deal in concrete block and sidewalk work.

A. B. Gehman, Dedham, Mass., visited the show to get some new ideas along the cement line. He is in the real estate business, but builds a great many houses each year and next year expects to go into the cement line more than ever. Mr. Gehman says there is a great deal of building in his town, but that the New England people are very conservative and take up the new things in the cement business very slowly.

The entire staff of the Charles Warner Company, both from Wilmington and Philadelphia, took part in the convention of Cement Users and the great concentration of interest at the show. Besides Charles Warner, there were A. D. Warner, treasurer; W. A. Bye, sales manager; W. A. Jordan, comptroller; Dr. Lazell and Irving Warner, from the technical branch. The Warner booth showed good taste and fine execution in the use of Nazareth Portland cement.



A. A. PAULY, YOUNGSTOWN, OHIO, INVENTOR OF CONCRETE HOLLOW TILE.



H. M. FETTER, OF THE W. G. HARTTRANFT CEMENT CO., PHILADELPHIA.

STRUCTURAL TILE

Wonderful Growth of the Hollow Concrete Tile as a Building Material.

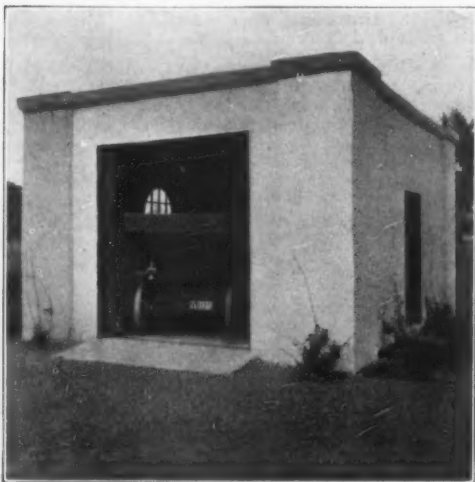
No branch of manufactured cement products has increased in commercial importance in any way comparable to hollow concrete tile of the Pauly type. The system of manufacture has been discussed in these pages in the early stages of the development, but it is not out of order to repeat a matter of such importance at a time like the present, when these tiles are being manufactured in so many of the leading markets of the country, with so many architects and engineers inquiring as to the product and its particular uses.

The invention reached completion less than two years ago, although the preliminary work in connection with the same covered a period of two years previous to that. A. A. Pauly, the inventor, operates a very extensive sand mine at Youngstown, O., and formerly was extensively engaged in supplying sand to building operations and contracting in concrete.

The Pauly tile is made of a very carefully proportioned concrete aggregate, with a content of Portland cement just as carefully proportioned, for too little or too much cement are equally objectionable. It has long been admitted by the best qualified experts that concrete in the setting or hardening process passes through a period in which the mass is a colloid, and that it ultimately reaches a condition in which crystallization begins and continues until it ultimately turns into an artificial stone or carbonated conglomerate of a very high order.

Method of Manufacture.

In practice the concrete mixture is agitated in the mixer with such a supply of water that the mass changes its condition into a buttery, jelly-like



GARAGE OF PAULY TILE.

substance, which can be spouted or poured with facility. This is introduced into the dies, which are made in the form of the tiles that are wanted. At present there are about twenty-five different shapes and sizes, as required in the different markets, which have been provided for in the Pauly machines. The machine consists of a group of dies, usually four, contained in a steam-heated jacket, the temperature of which varies slightly, according to weather conditions, the heated surfaces of the inner plates coming in contact with the jelly-like concrete mixture. The heat accelerates the set of the cement, and in a few moments by mechanical means (the turning of a wrench) the tiles are ejected upon iron pallets and immediately advanced to a curing chamber, which is kept at an even temperature and an even humidity by means of steam and boiling water.

The tiles thus finished, after a period of from twenty to thirty-six hours in the curing chamber, are piled on the yard for further curing by the simple process of aging. In from forty to sixty days the tiles become hard enough for handling and for shipping, and will show the full compression strength of the best grade of concrete at such an age. The improvement of the tile, however, is by no means complete and continues for six months, and less distinctly, perhaps, for an indefinite time. On account of the use of heat at the time of casting or forming the tile, all semblance of laitance is avoided and the surface of the tile makes the most



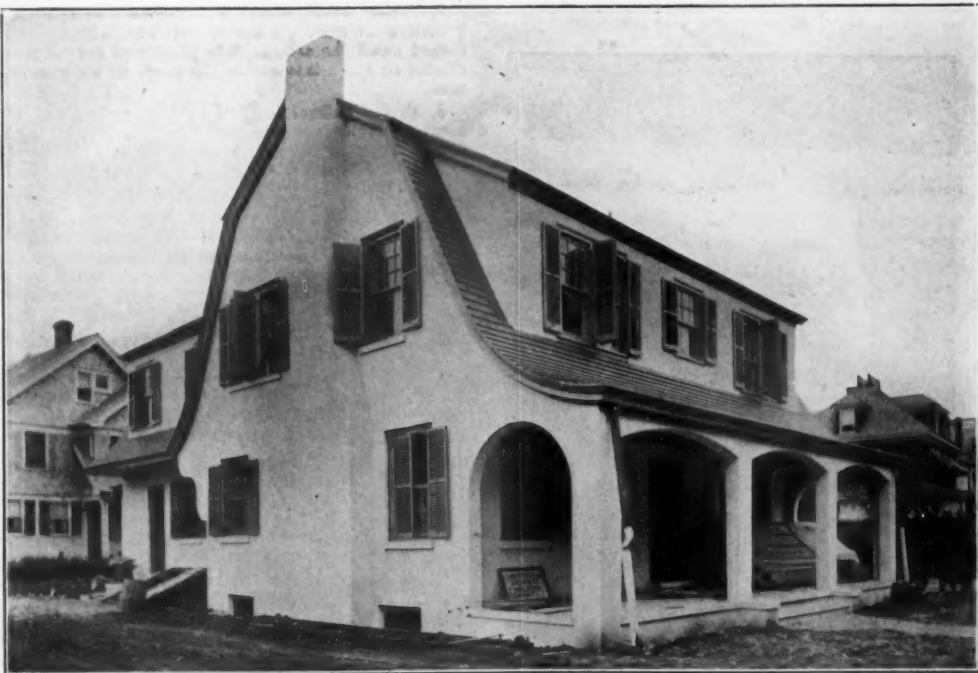
ONE OF THE INVESTMENTS OF THE MODERN HOMES CO., AT YOUNGSTOWN, OHIO.

perfect material for plastic treatment that has ever been devised. It is very low in absorption, although it has sufficient for what the practical plasterer terms "suction," and some of the most perfect exterior plastering, rough cast and stucco work have been done on tile surfaces. This is perhaps one of the most attractive features of Pauly tile to the builder and the architect, who desire to secure the wonderful effect that can only be procured by the use of plastic materials in exterior treatment.

Used for Every Purpose.

The tiles are designed for the construction of foundations by using shapes formed in such a way that the tiles can be filled after being placed in

position upon the footing, in this way providing a solid concrete wall with the tile surface for a finish both outside and inside, and doing away with the use of wooden or other forms in the work. Other shapes are used for building the walls and partitions of buildings of such thickness and strength as may be required. Concentrated loads are provided for in wall construction by filling solid concrete into concealed piers which reach down to the footing. Another shape of tile is provided for floor construction with the use of cinder or other concrete beams alternating with rows of tiles used for displacement, and the lighter shapes have even been used effectively in the same way for making concrete roofs. Another shape is especially de-



RESIDENCE BUILT OF PAULY TILE.



FACTORY BUILT OF PAULY TILE AT NILES, OHIO.

signed for curtain walls in buildings, having steel frame or of reinforced concrete frame, and these are the lightest, strongest, best and cheapest walls that have ever been devised.

In fact, the Pauly tile and the system of using them has gained such enormous popularity that it is safe to say the growth of the business is as yet in its infancy as compared to that which is to come, for there is no method by which a permanently beautiful, safe and convenient home can be built with so little money.

At the New York Cement Show.

In the great Cement Show just held in Madison Square Garden, there was no exhibit so practical of application and so far reaching in its importance to the public at large as that of the Concrete Products Company of New York, which supplies hollow concrete tile of the Pauly type to the market of Greater New York. Thousands of visitors recognized this fact, and have since visited some of the large number of houses for which this company has furnished the material during the last year and a half.

Pauly tiles have been extensively used in the construction of residences of the better class, and also for workmen's houses where manufacturing establishments build a large number of houses of the same size and design, stores, warehouses and barns, almost without number. It has been used for the improvements on elaborate country estates, where the fireproof element is most important and where beauty of design and finish are most desired. It has been used for partitions and floors in skyscrapers, in the new depot under construction for the New York Central Railroad at New York, down to the flagman's lodge in country villages beside the railroad crossing. For every conceivable purpose for which a building material could be used, Pauly tiles have been employed, and in no case have they been found wanting. A particular feature is that a customer once found invariably returns with repeated orders, because of the splendid satisfaction which they always get. The accompanying illustrations are selected as suggestive from a large number which are possible to show how and where the tiles have been used.

Tile Machinery Available Everywhere.

Mr. Pauly's concern, the Concrete Stone & Sand Company, of Youngstown, O., have formulated a plan by which they supply tile-making machinery to reliable parties in territory that has not already been covered, to manufacture these tiles, and in even so brief a time as two years, many of the leading markets of the United States can now be supplied with the material, among which may be prominently noted the plant of the inventor, The Concrete Stone & Sand Company, Youngstown, O.; the Concrete Products Company, 35 West Thirty-second street, New York, N. Y.; The Chicago Structural Tile Company, 353 Dearborn street, Chicago; Whitmore, Rauber & Vicinius, Rochester, N. Y.; The Concrete Stone Company, of Waterloo, Ia., besides several others whose addresses are not in hand at the moment. This business has spread to foreign countries, especially South America and the equatorial islands, to the Dominion of Canada and to European countries. Everywhere it has received the same recognition and achieved the same wonderful success by popularity with the user.

THE PRIZE HOUSE.

A Beautiful Home is Approaching Completion for the Lady Who Guessed Correctly at the Last Chicago Cement Show.

At the Cement Show which was held in the Coliseum in February, 1910, the Cement Products Exhibition Company offered a prize of material for the construction of a concrete house to the lady who estimated most correctly the total attendance at the show during three days of the exhibition. Later the prize of material only was changed to one of a

complete house. This was won by Miss Lillian M. Williamson, who secured a lot in Walden Manor at One Hundred street and South Irving avenue, from the firm of Robertson & Young, real estate. The house was designed by Francis M. Barton, architect, of Medinah Building, Chicago, and construction was commenced during the last week of October. The bulk of the materials has been donated by exhibitors at the Cement Show, and the expense of building the house is being borne by the Cement Products Exhibition Company, for whom W. S. Tait, civil engineer, is acting as superintendent.

The house is a two-story and basement building, comprising on the first floor a parlor 17x24, dining room 17x14, reception hall 17x9, two screened porches 24x9.6, kitchen 11.6x10.6, lavatory and pantries. The screened porches are situated at the east and west ends of the house, access being gained to them through the parlor and dining room, respectively, by means of French windows. In this way the porches are made quite private, which feature will be greatly appreciated. The second floor has three bedrooms 17x24, 17x12, and 10x10, each having a spacious closet, and there is also a well equipped bath room. The basement, which extends under the entire house and east porch, is divided up into a coal cellar, furnace room and wash room and can be entered from the north side and also from the kitchen. The basement walls up to grade are constructed of monolithic concrete, and from grade to first floor the walls are of concrete hollow tiles (Panley system) 20 inches thick, the remainder of the outer walls being of concrete hollow tiles 16 inches thick. All partition walls are of 4-inch concrete tiles made by the Chicago Structural Tile Company, of Chicago. The floors are of monolithic reinforced concrete in the Barton Spider-Web system, the slabs of which are 8 inches thick and

finished with colored concrete tiles. These floor slabs are carried on three reinforced concrete hexagonal columns 18x18 inches, around which the Spider-Web system is built, while the second floor ceiling is of metal lath attached to T irons, which are hung on wires from wooden rafters, the ceiling plaster being applied to the metal laths. In this way a fireproof screen is constructed to protect the rafters—the only part of the house which could be damaged by fire.

The roof covering is of concrete shingles, which are being donated by the Architectural Stone Company, Cincinnati. Even the stairways are entirely concrete. A handsome banister constructed of marbled concrete in artistically paneled slabs and terminating in a massive paneled newel, is an interesting feature of the main stairway.

The exterior of the house will have a handsome stucco finish, relieved by mouldings and a cornice. All the doors, door frames and window and door trim are of metal and are being donated by the Dahlstrom Door Company. The house provides a radical change in residential construction in Chicago. With the price of lumber increasing as it is doing and will continue to do, a substitute has to be found. And also the public is gradually awakening to the dangers of fire in the old-fashioned wooden frame house. Thousands of homes are burnt every year in the United States, occasioning an enormous loss to the community, to say nothing of the irreparable loss sustained in the destruction of household goods, and it is not sentimental to say that every home has certain possessions whose loss could never be replaced even by the powerful dollar. Most householders are insured against fire, but this fire tax can be very substantially reduced if people would only realize that fireproof homes can be built for about 10 per cent more than the same building could be constructed out of lumber; also the upkeep is considerably less. While a lumber house requires painting every four years, one built of concrete tiles with an exterior plaster finish does not deteriorate, but rather improves with age, and is worth as much in twenty years' time as it is today, but the same cannot be said of a lumber house, which deteriorates considerably unless constantly renovated. Every one should certainly try to see the cement show prize house at Walden, as it represents a distinctly new type of building construction, which has already been very largely adopted in different parts of the United States, and which undoubtedly has before it a very great future in the state of Illinois generally. The concrete house represents a type of building where economy is linked with a maximum of comfort and safety.



CEMENT SHOW PRIZE HOUSE, DECEMBER 13.

CEMENT EXPOSITION AT OMAHA.

The people of the Middle West are to have a cement show of their own early next year, when the Mid-West Cement Exposition, under the auspices of the Nebraska Cement Users' Association, will be held in the Omaha Auditorium, at Omaha, Neb. The show will last three days, February 1, 2, 3, 1911. It is expected that this, the sixth annual show of the association, will be the best by far that they have ever had. The Omaha Auditorium itself will contribute much to the show. It is built entirely of concrete and stone and has an exhibit space of 19,000 square feet. The Auditorium is in the very center of Omaha and easily accessible from all points. The great amount of floor space will be entirely covered by cement exhibits, exhibits of cement products and of much machinery used in concrete construction. The convention of the Nebraska Cement Users' Association will be held in conjunction with the show.

When one looks back and sees the great changes wrought in the closing years of the nineteenth century and in the forepart of this century, the realization comes that the age of wood is dead and has been supplanted by the use of cement for building purposes. More people are daily becoming interested in cement products as time goes by. This show at Omaha will be primarily a show for the farmer, as the farmers are a class of people who can receive many benefits from cement when they fully awaken to the fact. There is already a strong demand for cement on the farm in and around Omaha, concrete silos, barns and feeding troughs, etc., are springing up in large numbers. The promoters of this exposition anticipate a much stronger demand for cement if the attendance at the Auditorium comes up to expectations. The manager of the Auditorium has stated that he expects the attendance to reach 35,000.



**BUILDING OF MARBLE-FACED CEMENT BRICK
MADE BY H. C. ENGLAND, ST. FRANCISVILLE, ILL.**

All the exhibits for the show must be in place not later than noon of February 1, 1911, and must be removed by noon of February 4, 1911. A complete copy of the rules and regulations governing the show can be had from the secretary, Peter Palmer, Omaha, Neb.

The exposition is to be financed by the Omaha Commercial Club and will be under the direct management of a local committee, headed by H. G. Calkins, of the Nebraska Superior Portland Cement Company.

CONCRETE BLOCK AND BRICK FACTORY.

St. Francisville, Ill., Dec. 15.—This photograph shows the concrete block and brick factory of J. E. Diver at St. Francisville, Ill. This is one of several firms that are engaged in manufacturing cement products at this place. Brick blocks and tile are the leaders, but many other articles are also made here; also chimneys in sections, posts, braces, well covers, and tanks for various uses. The demand for concrete tile is growing, the manufacturers not being able to make them as fast as wanted. Very few clay tile are sold here, the concrete giving better satisfaction.

CONCRETE FRUIT HOUSE.

The fruit house shown in the photograph was built on the farm of S. B. Thompson, of St. Francisville, Ill. The building is one solid cast of concrete walls, floor and roof one solid piece, 14 feet long, 12 feet wide, 8 feet high, floor 10 inches thick, walls 6 inches thick, roof 4 inches thick. The window and door are double. This building has proved of great value for keeping fruit and canned goods, being frost proof in winter and cool in summer. The structure has been standing three years and is in perfect condition, showing no cracks.



MANTLE ERECTED BY ART STONE CO., OF WAYNESBORO, PA.

A new \$75,000.00 company has been incorporated in Manitou, Colo., for the purpose of erecting buildings, especially dwellings of the bungalow type. The concern is to be known as the Manitou Bungalow & Building Company and, according to present plans, will carry on extensive building operations during the winter and spring. The incorporators of the company are A. W. Hiner, P. M. Putnam and E. S. Brodie.

MARBLE-FACED CONCRETE BRICK.

St. Francisville, Ill., Dec. 15.—Concrete brick have been in use for several years. H. C. England is the first manufacturer to make them with a marble face. At his yards he is turning out thousands of concrete brick with 1/2-inch facing of marble that adds much to the beauty of the product. These bricks are made from the usual concrete mixture—small gravel, sand and cement. The marble finish is a mixture of marble dust and cement, some of the natural colors of the materials used, others in colors of red, green, slate and yellow. The marble finish is much smoother, giving a slick, glossy look when placed in a wall. The store building owned by Brian & McMurry at St. Francisville was built of these brick. The walls are of the natural in colored stock with trimmings in pink and blue, and it is said to be the most beautiful finished wall in southern Illinois. Mr. England also makes these brick with fancy faces for the tops of wall or corner or ledges. They are much truer in shape than clay or shale brick, are perfectly uniform in color, and the marble face will not come off.

BUYS 20,000 TOY HOUSES.

Mrs. Mirabeau L. Towns, wife of the Brooklyn lawyer, who lived at 24 Eighth Avenue, Brooklyn, recently gave an order at the Cement Show at Madison Square Garden for the making of 20,000 cement toy houses which she intends to distribute among poor children throughout the city. The moulds used for the toy houses are miniatures of the molds invented by Thomas A. Edison for full size cement structures.

Mrs. Towns, who was recently appointed a member of the Board of Education, visited the Cement Show twice. The second time she called she placed in the hands of Mr. Beck, the manager, a certified check to pay for 20,000 miniature cement houses. Mr. Beck was amazed at the order until Mrs. Towns told him that the houses were to make glad the



CONCRETE BRICK AND BLOCK FACTORY.

hearts of as many poor children. The little houses will all be made in the garden.

There are to be doll houses for the girls, and factories, garages, engine houses, stables and the like for boys. Each house for the girls has little windows ready for curtains and shades. There is a bathroom, drawing room, kitchen and dining room in each house for the girls, as well as a veranda and rear stoop. Panelled doors on hinges, window sashes with cords and weights, a basement and a chimney are other appointments.

Mrs. Towns intends to distribute her gracious gifts to the poorest children in every borough in the city on Christmas.

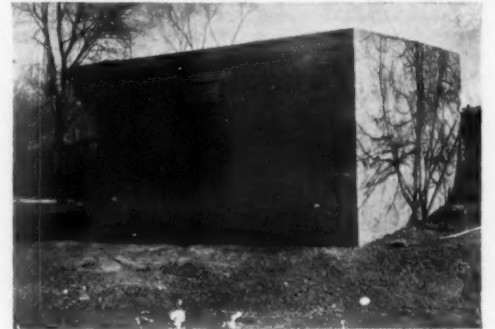
More than 25,000 persons who visited the exhibition marveled at the demonstrations of the manifold uses to which cement and concrete may be put. Scores of these demonstrations are being made at the show in the garden daily.

The artistic possibilities in the use of cement is shown in the reproduction of Greek and Pompeian mural decorations which adorn one of the principal booths. Here, too, are shown specimens of old Roman pottery, statuary and pedestals reproduced with skilful exactness and designed for use in ornamenting Italian gardens and villas.—New York Sunday Herald.

CRACKS IN CONCRETE WORK.

Fine lines sometimes appear covering the surface of trowelled cement work. These are known as hair cracks and may be caused by too rich or by too wet mortar, or by over-trowelling, or by all three combined. They appear generally on work that has been seasoned in the open air during the last stage of hardening.

These cracks are the result of uneven settling and appear in walls, walks, floors, etc. These cracks appear in the first year or so of the construction. The



SOLID CONCRETE FRUIT HOUSE.

uneven settling is due to heaving by the frost, to jars and shocks while the cement is setting, to too shallow foundations, to foundations not filled uniformly, or to water in the foundations.

Freedom from shrinkage and expansion cracks is an ideal condition in construction work which is as yet unknown in practice. Even in concrete work, where construction and expansion are reduced to a minimum, the cracks are slightly in evidence. For this reason walls and walks, etc., must be divided into sections which will admit variations without rupture. Change of outline or irregular thickness will cause weak points and there will be cracks at them along the line of least resistance. Walls should be heavier through the center than at the outer edges, although the general practice is to make them the reverse. There will always be cracks resulting if care is not taken that the top mortar layer in floors or walls is blocked up evenly with the blocks in the concrete below.

The Neeley Cement Block & Construction Company has been incorporated at Cortez, Colo., with a capital stock of \$25,000.00. The incorporators are Wm. G. and Wm. C. Neeley and Chas. R. Reed.

The Concrete Machinery Company has been incorporated at St. Louis, Mo., with a capital stock of \$50,000.00. The incorporators are Breckenridge Morehead, R. L. Gurney, George W. Parish.

John Junke, a workman for the Brownell Improvement Company, at Thornton, Ill., was killed recently when a blast exploded prematurely in the quarry at Thornton.

In various building operations in and about Richmond, Wis., the past season over 10,000 barrels of cement were used. This is an unprecedented record. A considerable portion of the cement went into silos and other building operations on the farms.

National Association of Cement Users

Hold Seventh Annual Convention at New York—Most Important Meeting
Yet Held—An Educational Feast.

The Seventh Annual Convention of the National Association of Cement Users was by far the most important of the meetings of that body. It has taken seven years of constant study and application, of careful organization and husbanding of meager resources to establish the association as it now stands, fully recognized as the most influential and practical of technical societies devoted to improvement in structural and engineering lines.

ROCK PRODUCTS has been intimately in touch from the beginning with the great work that has been undertaken and further, in fact, our columns have always been the bulwark of support to the little band who started into the unknown, at the Indianapolis Convention, seven years ago, and blazed the trail. To-day it takes four figures to count the army of progressors who are devoting their efforts to the uses of cement and before the aim of the organization is fulfilled they will number into the tens of thousands. Not only throughout the length and breadth of the United States is the enthusiasm and established power of the association well known and recognized, but in all the foreign countries where engineers and leaders of thought are looking to America for the developments of the best in these new lines, is the National Association of Cement Users well known and well respected. This is evidenced by the fact that the older organizations of European countries have sent delegates to the Seventh Annual Convention to participate in the proceedings and to extend the heartiest kind of fellowship and asking for the co-operation of the great American society.

Richard L. Humphrey, the peerless leader of the movement, has given liberally of his time and labor and he has been ably buttressed by a coterie of co-operating officials, who deserve a large part of the honor of bringing this great enthusiasm into practical working form.

H. C. Turner, who has been the treasurer from the beginning, and the men who have served as vice presidents on the Board: Merrill Watson, E. D. Boyer, E. S. Larned, L. C. Wason, R. P. Miller, A. E. Lindau, Harry S. Doyle, W. H. Ham, Ira H. Woolson, A. N. Talbot, C. D. Watson, not forgetting the newly elected secretary, Edward E. Krasuue, besides the host of contributors of papers and active members who have worked out the destiny of the association with their valuable discussions of practical topics, which have served to develop the great concrete industry, opened new possible connections that could not have been made at the beginning of the work. The association has already achieved great things whose usefulness to the human family can only be measured by future generations.

The members of the association are better acquainted with one another and all well satisfied with the plan of organization, which is fully understood so that it is one harmonious body. They are producing to-day a power and higher plane of usefulness in the plan of work that has been laid out for the coming season. A brief sketch of the proceedings of the sessions held in Concert Hall at Madison Square Garden, in New York, in conjunction with the great Cement Show which was conducted there, December 13 to 20, follows, and we hope to have an opportunity to publish in later issues a large number of the papers, some of which it is impossible to print at this time, owing to the indispensable illustrations for the complete understanding of the paper as delivered. All of the papers, together with the stenographic report of the discussions, etc., will be published later in the official proceedings of the association in book form.

At the formal reception of delegates to the National Association of Cement Users the following gentlemen presented credentials from organizations in foreign countries: Dr. Karl Bittner, director, and Dr. Franz Boehm, engineer, Oesterreichischer Betonverein, of Vienna, Austria; Dr. Otto Schott, Deut-

scher-Betonverein, Heidelberg, Germany; M. Baneth, special Representative of the Lord Mayor, Budapest, Hungary; Joseph Boreo, Société des Ingenieurs Civils de France, Neuilly, Seine, France.

OPENING SESSION DECEMBER 12.

The formal opening of the convention took place Monday evening in the presence of the largest attendance of engineers and other cement users ever present at an opening session.

George McAneny, president of the Borough of Manhattan, made a graceful speech of welcome on behalf of the city. He sketched the practical benefits of such organizations as the National Association and expressed his confidence in the intelligent methods that are being pursued.

President Humphrey voiced the appreciation of the society.

John A. Bense, president of the American Society of Civil Engineers, addressed the meeting from the standpoint of the engineer of experience and one who has observed all the changes and improvements that have come in the field of concrete.

Ross F. Tucker appeared to supply the number of Benjamin D. Traitel, president of the Building



RICHARD L. HUMPHREY, PRESIDENT N. A. C. U.

Trades Employers' Association, who was too sick to be present. He spoke of his long experience as a cement user and briefly described the organization he represents. It is a plan of arbitration to settle all kinds of difficulties between labor organizations and the employers in the building trades. Its influence has practically eliminated strikes. He extended an invitation for the members to visit the headquarters in the Builders' Exchange and accept the hospitality of the organization.

A short intermission to formally receive the foreign delegates was taken.

Appointment of committees on nomination and resolutions according to the constitution.

Paper by L. C. Wason, president of the Aberthaw Construction Company, Boston, "Dustless Concrete Floors." A dustless floor is one which wears so slowly that it is negligible. Cement does not of itself wear as good as natural stone, but the selection of non-wearing aggregate, or more properly very small particles one-eighth inch in diameter, is the smallest average size to avoid abrasion. It is possible to get a surface of 90 per cent stone aggregate and 10 per cent of cement. Floors may also be dusty, not attributable to the aggregate. It is due to the handling, such as using dryers or working

the surface after it has been laid too long a time. To overcome this difficulty the selection of materials is important. Any standard cement may be relied upon; I would avoid the use of sand entirely. Stone is the base of a dustless floor. Any stone that is fit for macadam roads is suitable to the purpose of making a dustless floor. The more impervious to abrasion the better. Water should always be free from oils and acid. Proportions one to one and one-half or one to two. Be careful to use no more water than will barely provide for troweling, and see that no flour is contained in the crushed rock, even if it may have to be blown out. Such a finish costs about a cent per square foot. The remedy for a dustless floor is a coating of boiled linseed oil. If one coat doesn't do it, two will. A wash also made from the silicate of soda will do the same thing. Several applications will accomplish the desired result. Three-quarters of an inch is quite sufficient thickness for the best floor. Sometimes it is necessary to make two mixtures, one much coarser than the other, and have the finish about two inches thick.

Mr. Vinton remarked that it would be well for concrete contractors to take the stand that the architect must make specifications that give the possibility of making a dustless floor.

Mr. Kinney: After all, what we want is a dustless floor. It would be better to make good concrete all the way through, and in this way not depend on any bond.

Mr. Larned: The process of finishing itself often causes the dusty floor. I think it is impossible with an inch of finish to make a dustless finish on an old or hard set concrete slab. I believe that a new tool for troweling will yet be introduced.

Mr. Hillis: A volatile oil carrying paraffine or something similar is much cheaper and quite as good as linseed oil.

Paper by Jerome B. Lansfield on "Some New Methods in Sidewalk, Curb and Gutter Construction." Good work cannot be done without charging a fair price. The public seems to be cheap-crazy in this special line. The main points of a good sidewalk are hard, durable surface, a surface on which one is not liable to slip. The secret of good sidewalk work is to put a top coat on fairly stiff, and if best bond is wanted you will have to tamp it. Stiff enough so that the material will stand for tamping. This will also save the overtime of waiting for the cement to harden up. Concrete can be overworked by troweling with a steel trowel.

When float finish is put on take a damp brush and go over the surface—taking off the sharp particles. This makes a very handsome surface. Simplicity in sidewalk work is the best appearing. Use steel forms consisting of channel iron rails and screed bars for sidewalks. The same principle is also applied to curb and gutter work. Illustrations of sidewalk work by the use of metal forms made so as to be interchangeable were thrown on the screen.

C. W. Boynton, chairman, delivered the report of the Committee on Roadways, Sidewalks and Floors. He reported progress, and explained that time was not yet sufficient to make any satisfactory recommendations. "Even in another year's time we will not be ready to make final recommendations based on experience. Our specification on floors will have to wait also. What we must do about the dustless floor is to make a floor that will not dust—not try to cure this fault after it has developed. We must experiment further upon the specifications adopted tentatively last February. I disagree with the idea that the aggregate takes all or even a greater part of the wear than the cement. It is the fault of the treatment whenever cement will not stand the wear. The conditions under which floors are usually finished in reinforced concrete structures make the greatest difficulty, for we all know that we do get the desired hard finish in sidewalks right along."

MORNING SESSION, DECEMBER 13.

According to program the session was given over entirely to the consideration of reinforced concrete. Foremost engineers and contractors from all parts of the world made up the audience. The executive session of the section on reinforced concrete was held at 9 o'clock with an open discussion upon the proper selection of materials and methods of practical construction as developed in the field.



EDWARD D. BOYER, VICE-PRESIDENT N. A. C. U.

A. R. Lord, of Illinois University, presented his paper entitled "A Test of the Flat Slab Floor of a Reinforced Concrete Building." Following this Mr. Lord also read the paper of Prof. Arthur N. Talbot, of Illinois University, entitled "A Tentative Analysis of the Reinforced Concrete Slab." It was explained that both papers were so closely related in subject as to make one discussion of both the most practical way of handling the whole matter. The first paper dealt in minute detail upon studies of a building recently erected in Minneapolis by the Leonard Construction Company in which the flat slab design was used effectively. All of the points of the lecture were illustrated with stereopticon views, and fully explained both as to the calculations, materials and methods employed in the actual work.

Professor Talbot reservedly endorsed all of the deductions of Mr. Lord, approved the formulæ and working co-efficients that had been developed, and questioned all of the unsettled or unobtainable points.

The discussion of the technical points involved in this pair of papers lasted till after 1 o'clock. Messrs. Thompson, Anderson and many others participating in the citations of experiences and opinions developed in practice in the field.

Emile G. Perrot, of Philadelphia, furnished a paper entitled "Analysis of Results of Load Tests on Panels of Reinforced Concrete Buildings," which was presented by Mr. Ballinger and was illustrated by numerous diagrams showing loads applied and views of the interior of completed structures. The full text of the paper would be necessary to get a clear idea of the subject matter handled.

W. H. Ham, of Boston, followed Mr. Perrot's paper with a short explanation of methods of flat slab construction.

Both of these papers were ably discussed by Bazer, Chapman, Ham, McMillan, Larned, Anderson, Clark, and others.

R. A. Cummings, of Pittsburg, presented a paper entitled "Some Methods of Measurement of Concrete Construction." He forcefully called attention to the need of formal rules of measurement for the various parts of concrete structures. He appealed to the association to take the initiative in suggesting standard practice.

President Humphrey bespoke the interest of the association in this matter, and on motion the same was referred to the Committee on Reinforced Concrete.

A. E. Lindau, chairman, presented the report of the Committee on Reinforced Concrete and Building Laws. He used in illustration a typical design of reinforced concrete floor and section which he used to show comparative costs in New York, Chicago and San Francisco, as affected by variables in the building code requirements. This proved to be a novel and striking illustration of the need of standardization of structural requirements.

"The Human Element in Concrete Construction," by Harry Franklin Porter, was read by title and passed to the official proceedings of the convention.

EVENING SESSION, DECEMBER 13.

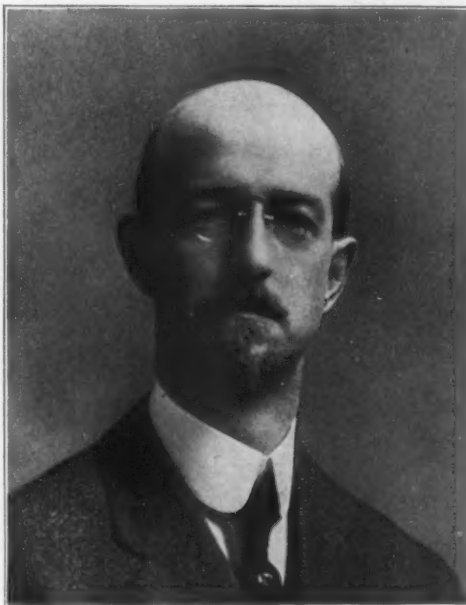
In the evening President Humphrey opened the session by delivering his annual address to the members of the association. Breathing with encouragement that has been won by his application and enthusiasm during the seven years of the history of the association, he imparted a measure of the same feeling to all within the convention. He reviewed all the progress that has been made and suggested more that is yet to be taken up and worked out.

Dr. Otto Schott, of Heidelberg, Germany, gave a learned comparison of the cement industry in Europe and in America, as culled from observation and wide reading of the technical press.

William H. Merrill, of Chicago, read a paper entitled "National Fire Protection Association and Its Work." He briefly and ably outlined the purpose and plan of this organization which has been accomplishing some valuable results in the matter of fireproofing, fire prevention and insurance. Deeply interesting to every concrete man in the abstract, this paper gave no little food for thought in the future.

Prof. Charles L. Norton, of Boston, read a paper entitled "Some Thermal Properties of Concrete." This is a subject which has received far too little attention. Some of the points brought out in the paper showed that concrete possesses certain thermal qualities which have been for the most part overlooked, and there are directions of thought that have been entirely overlooked, taken for granted, or passed without due consideration perhaps ill-advisedly. The matter of thermal values of concrete is practically a new subject and one which doubtless opens another chapter. As opening such a new line of thought Professor Norton's paper is invaluable. The paper is published in full on another page.

George S. Rice, Pittsburg, read his paper entitled "Some Special Users of Concrete in Coal Min-



E. S. LARNED, VICE-PRESIDENT N. A. C. U.

ing Operations." Mr. Rice is a mining engineer operating in the coal industry of Pennsylvania and is a warm advocate of concrete for all the structures of a mining operation. He showed a number of views illustrating the difference in substantial features of French and English mines.

Discussion upon the subject of cinder concrete, as to how much coal can be allowed without endangering the concrete, followed.

Professor Woolson stated that his observation led him to believe that 7 per cent coal is in no way injurious.

Mr. Cummings said that he was opposed to cinder concrete as dangerous to the reinforcement and structural steel.

Mr. Miller said that he never saw steel injured by cinders in concrete because the cement is a preservative. He had seen certain expansion differences between steel and stone concrete.

MORNING SESSION, DECEMBER 14.

At 9 o'clock the meeting of Sections on Fireproofing and Insurance convened, and the meeting

took the form of general discussion on the question of fire-resistive construction of buildings and the effect on insurance rates. On the matter of construction various details of design and actual construction were discussed (as they were understood), discussions in which the leading experts took part.

At 10:30 o'clock the regular program was taken up and the following paper read and discussed:

In the absence of Mr. Perrot the paper on the "Incident of Value of Concrete in Reducing the Cost of Insurance" was read by Mr. Ballinger.

The report of the Committee on Insurance was presented by William H. Ham, chairman, and covered the question of rates on different types of building construction shown with concrete was considered by insurance people as a fire resistive type of construction. In some parts of the country the rates on concrete buildings were not as low as they should be, and it is the intention of the committee to endeavor to have same adjusted. Comparison was drawn between the method of constructing frame, brick and concrete dwelling houses. This same comparison was also made for the frame, brick and mill construction, steel fire-proofed and reinforced concrete and loft building. A list of the various rating associations in all parts of the country was submitted and the Membership Committee were urged to advocate the adoption of the various rules adopted by this association, and other committees dwelling with reinforced concrete, and that prospective builders would be assured of minimum rates. The committee also urged upon prospective builders submitting their plans to the rating association in advance, so as to obtain criticism and discuss such details of construction as would increase their rate of insurance.

Healthy Financial Condition.

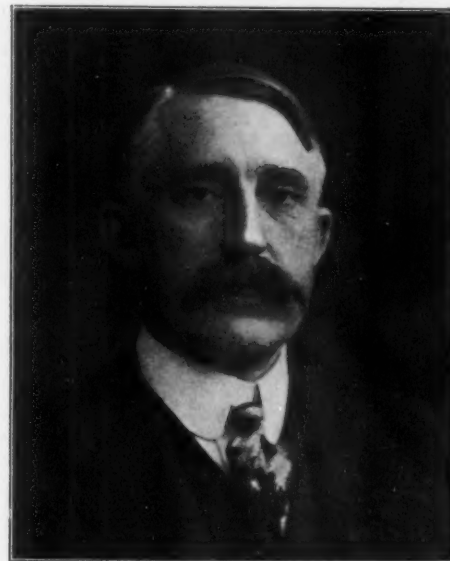
The report of the executive board was read, showing that the membership had increased 1,048 members and that the financial condition of the association was in satisfactory shape. The board ruled as a reason for not increasing membership fee was that the revenue received from the annual dues would be sufficient to meet the running expenses. The board also reported that the proceedings are self-supporting this year.

The Committee on Nominations of Officers, consisting of Thos. M. Vinton, of New York (chairman), Emile G. Perrot, of Philadelphia; Robert A. Cummings, of Pittsburg, Pa.; A. T. Bradley, of Rochester, N. Y., and Robert Anderson, of Cincinnati, reported as follows: For president, Richard L. Humphrey, Philadelphia; first vice-president, E. D. Boyer, New York; second vice-president, Arthur N. Talbot, Champaign, Ill.; third vice-president, E. S. Larned, Boston; fourth vice-president, Ira H. Woolson, New York.

The list of officers was received with loud acclaim.

The Committee on Resolutions consisted of B. F. Affleck, of Chicago (chairman); A. S. Johnson, of St. Louis, Mo.; Peter Gillespie, of Toronto, Can.; Angus B. McMillan, of Boston, and Milton Dana Morrill, of Washington.

The president paid a tribute to the efficient and faithful services of M. S. Daniels, second vice-president for the past five years. A rising vote of thanks was paid Mr. Daniels for his efficient and faithful services. Meeting adjourned.



IRA H. WOOLSON, VICE-PRESIDENT N. A. C. U.

EVENING SESSION, DECEMBER 14.

Seth A. Moulton presented his paper, entitled "Some Construction Problems of the Aziscohos Concrete Dam." As a member of the contracting firm in charge of the big job all of his observations were drawn from experience. It was immensely interesting.

H. M. Cryder, of St. Louis, had a fine practical paper entitled "Preparation and Hardening of Concrete." This, like the preceding, was profusely illustrated with lantern slides showing the methods employed in placing concrete in heavy structures.

G. L. Prentiss with his paper on the "Use of Compressed Air in the Handling of Mortar and Concrete" introduced a novel and deeply interesting feature hitherto little known even to those best posted in the concrete lines. An air compressor of the usual type is used to drive dry sand and cement forcefully against a surface prepared to receive it. At the time of discharge from the nozzle the dry material becomes mixed with water which is introduced at the nozzle under pressure. As a result concrete is formed with impact and a smooth surface produced. The illustration began with the Field Museum at Chicago, which was treated in this way, and continuing showed many applications of the new concrete "gun" principle. This paper, together with the "gun" on exhibition at the show, constituted a sensation.



H. M. CRYDER, OF THE WILLIAM P. CARMICHAEL CO., ST. LOUIS.

MORNING SESSION, DECEMBER 15.

The meeting opened with the convention hall fairly well filled with the manufacturers of cement products such as building blocks, drain tiles, pipe and the like. After an hour of general discussion of subjects nearest to the operations of such plants, the meeting was turned to the regular order of the program.

Charles D. Watson, of Syracuse, N. Y., took up the "General Considerations in the Construction of Cement Products Plants." Mr. Watson covered the subject with his usual exactness and care. Digressing, he referred to the bad feature of unreliable competition, mentioning one set of specifications that was let out to competitive bids, and the bids for the architectural blocks and manufactured structural members ranged in price all the way from \$22,000 to \$62,000. Evidently the bidders were not figuring on the same class of work and material if the specifications were clear enough to be understood. The high man could not expect to compete with the low man's bid, in price at any rate, and in the absence of known landmarks or standards the purchaser of cement products of this character is led to observe that the industry is in a chaotic state and for that reason not dependable. The building public must be taught to discern the difference between high-class goods, which naturally cost more than that carelessly made and inefficiently en-

gineered. The point was well taken and forcefully presented by Mr. Watson.

C. M. Powell, of Chicago, presented his paper entitled "Cement Tile Plant—Layout and Operation." The drain tile business is one of the important branches of the industry now rapidly developing by leaps and bounds. Mr. Powell's paper dealt with the engineering construction and operating of several of the best equipped drain tile plants now in operation. Numerous illustrations exhibited all the details of construction and showed the plants in operation.

F. S. Phipps, St. Joseph, Mo., spoke from "Additional Notes on Steam-Curing Plants." This is the continuation of a very valuable and important departure in the handling of cement products that has been led by Mr. Phipps at several of the former conventions of the association. He mentioned the successful introduction of the "curing hood" for the purpose of curing such pieces as were found to be too large for handling in the regular way in the steaming chamber. He also explained that the main difficulty of the past in using the steam curing principle had been overcome. This referred to the dripping of condensed steam from the flat roof of the first steaming chambers that were built, in this way disfiguring the material under treatment. The difficulty was entirely eliminated by changing the flat roof into a semi-circular arch, the shape making a path of the incipient drops of water to cling to the curve and finally run down the side walls of the steaming chamber.

Clarence K. Arrp, of Chicago, presented the report of the Committee on Specifications for Cement Products. This was ably and carefully drawn, outlining in the shape of tentative specifications the best plans upon which to work up the final, more definite rules for practice.

Considerable discussion of the topic resulted in referring the report as read to letter ballot and further discussion in writing to the members of the association interested.

FRIDAY'S SESSIONS, DECEMBER 16.

According to program, this day was set apart for the consideration of the "Treatment of Concrete Surfaces," and Chairman L. C. Wason, of Boston, had his hands full, as this is a branch of the industry that is in process of formation to a certain extent.

In the absence of Major Sewell, President Humphrey read his paper entitled "Web Reinforcement of Concrete Beams."

J. P. H. Perry, of the Turner Construction Company, New York, presented his paper on "Comparative Cost and Maintenance of Various Types of Building Construction." This was illustrated with views of buildings based upon different kinds of calculation from separate viewpoints of consideration. Comparative costs of each accepted type had been carefully tabulated and these were considered exhaustively with a very able command of the whole subject.

The discussion of this paper proved so absorbing that the floor would not let go until the closing hour of the session had long passed, and an afternoon session was provided to complete the remaining numbers on the morning program.

At 3 o'clock Chairman Wason presented the formal report of the Committee on Treatment of Concrete Surfaces. As soon as he reached the proposed specifications for stucco on metal lath, the big guns of the association opened up, and even the term "stucco" was severely criticised, Messrs. Boyer, Boynton, Sparkman, Wig and others taking issue with the report as submitted.

Under all of this crossfire the chairman was patient, and disclaimed that the committee had any monopoly on technical or practical information.

President Humphrey came to his rescue by declaring that the whole subject would be referred by correspondence to the members, and a revised report called from the committee for presentation to the next convention.

After adjournment the chair recalled the session to hear Mr. Spackman's suggestion that the Association undertake the matter of creating an universally acceptable glossary for the use of the industry, somewhat like the German concrete organizations have already done. This was in line with the protest of the use of the term "stucco."

It is to be hoped that the board will find words and compound words somewhat shorter than our German brethren have adopted. This is a suggestion from ROCK PRODUCTS to the board, for we are committed to the use of the future glossary in advance, and some of those German words would materially increase the cost of printing in New York especially.

EVENING SESSION, DECEMBER 16.

The Friday evening session of the National Cement Users' Association opened with the address of Wm. H. Burr, professor of civil engineering, Columbia University, New York City, on the subject of the Hudson Memorial Bridge. Mr. Burr explained that the bridge, of unprecedented length, is built on the unit system of reinforced concrete construction. He said that all the steel reinforcement is of a load-carrying character and that both the steel and concrete are made to act as a unit.

R. A. McCullough, chief engineer with Raymond F. Almerall, New York City, was the next speaker. His subject was "Some Advantages of Reinforced Concrete from An Architect's Point of View." Mr. McCullough said that one great advantage of reinforced concrete was the simplicity of construction that is made possible. He showed by some views of buildings under construction, that windows and doors have a tendency to sag if the falsework is removed too soon.

"Reinforced Concrete School Buildings" was the subject discussed by John T. Simpson, president of the American Concrete Steel Company, Newark, N. J. Mr. Simpson first became interested in this branch of the work after several school buildings burned down, causing great loss of life. He said that when he began to work along this line, to



JOHN P. SIMPSON, AMERICAN CONCRETE STEEL CO., NEWARK, N. J.

push the idea of reinforced concrete construction for school houses in order to make them fireproof, he found that such a building could be put up as cheaply as a wood-and-brick building, and in almost every case the reinforced concrete building can be built cheaper. One of the difficulties, he said, was to get some kind of a floor for a concrete school building, for most school boards object to the pupils sitting with their feet on the cement, maintaining that it is too cold. Mr. Simpson showed some views of concrete school houses that have been built recently, one of the main features of which was the use of brick as an ornamental decoration to relieve the plainness of a single concrete panel or wall.

CLOSING SESSION, DECEMBER 17.

According to program, the subject of waterproofing was taken up and discussed. The topic is one in which all the practical engineers of the country are deeply interested, and consequently there was the usual attentive audience.

The paper by R. Baffrey was read by Mr. Burrows, bearing upon the subject of "The Use of Reinforced Concrete in Sea Water." It was a fulsome exposition of practical experience in such lines.

In the discussion Mr. Wig related the deductions of government laboratory in sea water investiga-

tions. Mr. Spackman, Mr. Chapman and others ably turned on the side lights, and President Humphrey summed up the matter by stating his observations in Europe to the effect that concrete made of Portland cement and proper aggregates and correctly handled has been proved to be in all respects suitable for sea water work.

This was followed by a paper presented by Cloyd M. Chapman on "Waterproofing With Water." It was short and to the point, and illustrated graphically with plotted lines to show the relative comparison of the effect upon permeability and absorption with varying proportions of water in the mixture.

Mr. Louis presented an argument in defense of the waterproofing compounds so well known to the trade, and appealed to the workers in the field as to the indispensability of waterproofing in very many cases that have already developed and always liable to come up again.

President Humphrey took the position that it was always possible to make concrete so as not to need waterproofing, but admitted that it was necessary often to repair defects and overcome certain local difficulties by their use. He explained that the specifications and recommendations of the society dealt exclusively with the producing of perfect results in concrete, so that the consideration of waterproofing was foreign to the documents of the association. However, it is an important practical matter which must always be considered.

The heavy artillery of the association discussed these two papers at length, Messrs. Wason, Spackman, Wig, Chapman and others participating.

"The Waterproofing of Tunnels," by A. H. Harrison, was the next paper considered. He used the new Pennsylvania and Manhattan tunnels as models, showing all three of the methods of water-concrete mass. The speaker gave comparative proofing that were used in these great works. These are, in detail, coating the outside of the concrete shell with hurlap carrying tar or pitch; plastering the inside of the shell with a water-resisting mortar, and incorporating a dry mortar repellant with the costs as taken from the records of the tunnels used as models for the discussion. These clearly showed the last plan to be the most economical, although not always available.

On account of the lateness of the hour, the president brought the discussion to a close after brief discussion.



ROBERT W. LESLEY, TOASTMASTER N. A. C. U. BANQUET.

Benj. F. Affleck, chairman of the Committee on Resolutions, read his report, which was adopted with applause.

President Humphrey then closed the convention with appropriate remarks and exhortation to the members to strive during the coming operating year to surpass the records of the present convention.

These remarks were roundly applauded and the members rushed to the platform with outstretched hands to congratulate the president on the success of the convention.

W. F. Kearns, heavy contractor of Boston, allows that it is both gratifying and instructive to have the leading engineers talk "carefully" in the meetings.

THE BANQUET

The social feature of the seventh annual convention of the National Association was a wonderful success. The "four hundred" of concrete were there and they were all in the mood to enjoy themselves. Hardly had the repast begun to be served when the spirit of the occasion burst out in merry songs so that the orchestra could hardly keep up with the flow of goodfellowship that was in the air.

After coffee and cigars, President Richard L. Humphrey introduced the toastmaster, who needed no such office, for his name was hailed with enthusiastic applause. Robert W. Lesley, whose brilliant personality and eminent career in the cement industry are internationally famous, with a few graceful and appropriate remarks, took charge of the feast of things intellectual. This part far excelled anything that could come from the cuisine of even the Astor.

John P. Mitchell, president of the Board of Aldermen of the city of New York, spoke to the toast of "New York and Concrete." A forceful and logical speaker, he reviewed the reorganization of the city government, and dwelt upon the movement toward standardization of all commodities and supplies. Coal and meat had been so standardized and while cement has not yet been reached, he felt that it soon would be. He appealed to the men as citizens to take a part in governmental affairs and so help the big cities to have better laws for building as well as other things. He said that the extension of the subway system, now under consideration, will have to be done soon, and it was up to the cement users to do it and do it well.

The toastmaster told of a western man who came to New York some years ago and felt like a bird because of the elevators and elevated trains. Now we cementers have been invited to make such a stranger feel like a mole.

Dr. Karl Bittner, director Oesterreichischer Beton Verein, extended the greetings of the European concrete societies and trusted that a bond of cooperation international might grow up to the lasting good of the industry on both sides of the water. Dr. Bittner spoke in exquisite German, and President Humphrey followed him with a short statement in English for the benefit of those who could not follow the speaker.



BANQUET OF NATIONAL ASSOCIATION OF CEMENT USERS.

The toastmaster told of the way the specification on reinforced concrete was secured by locking up the members of the committee for several days. He feared that if any international attempt of the same nature was undertaken it would amount to incarceration, but turning to solemn things.

Charles Battell Loomis next proceeded to explain all of the discoveries and improvements of the industry, beginning when he was four years old by making a concrete pie, and finished his pseudo career by building a full-fledged church. It was laughable in the extreme and hugely enjoyed by reason of the misuse of many familiar technical terms.

The toastmaster invoked the spirit of art in concrete by introducing John Carrere, the famous New York architect.

Mr. Carrere, the builder of the Ponce de Leon Hotel at St. Augustine, Fla., which was the first great concrete building to be erected on this continent, told of the theme and motif that led to the use of foreign cement in the early concrete work. He suggested that concrete should always be used upon its own merits and not as a substitute or imitation of something else. While the architect is necessarily conservative, he wants improvements. Cement is a plastic material, and the most wonderful results have been achieved with plastics. The country is full of wooden buildings which must be replaced with more suitable ones, and concrete is the material that will largely influence this great change that is right upon us.

The toastmaster observed that we are in an age of plastic ideas, and this has no little to do with making cement just the material. He agreed with the speaker that the cement house is the home of the future, as the present already proclaims.

Robert W. De Forest, president of the Sage Foundations Home Company and president of the Art Commission of the City of New York, spoke to the toast "Concrete and the Better Housing of the Poor." He said in part: "It is necessary to build cheap houses in order to secure low rents. The purpose of the Sage Foundations Homes Company is to improve living conditions. Cement is the only obtainable material that is cheap enough and at the same time safe enough. To improve living conditions in this way is a great social gain. Permanence is one of the main attributes of cement, and when used on lines of beauty it is perfect."

John R. Morron, president of the Atlas Portland Cement Company, was called to his feet by one of the most sparkling sallies of the toastmaster.

He declared that he would not make an address, but only tell them how it looks to him. In a well-balanced and truly witty style he countered and mixed in two funny stories to make it taste good, ending with a graceful poem of welcome to the cement users to come again as often as they like.

With appropriate words of dismissal from President Humphrey the most enjoyable feature of the convention closed.

ELECTION OF OFFICERS

The elective members of the Executive Board of the National Cement Users Association met on December 19 at convention headquarters and elected the following roster of officers to serve for the ensuing year: President, Richard L. Humphrey, Philadelphia; first vice-president, E. D. Boyer, Catsauqua, Pa.; second vice-president, Arthur N. Talbot, Champaign, Ill.; third vice-president, E. S. Larned, Boston, Mass.; fourth vice-president, Ira H. Woolson, New York; secretary, E. E. Krause, Philadelphia; treasurer, H. C. Turner, New York.

The chairmen of sectional committees, each of whom is by virtue of such position also a vice-president of the association, were elected as follows: Building Blocks and Cement Products, P. S. Hudson, Louisville, Ky.; Exhibition, H. S. Doyle, Chicago; Insurance, W. H. Ham, Boston; Reinforced Concrete and Building Laws, A. E. Lindan, St. Louis, Mo.; Roadways, Sidewalks and Floors, C. W. Boynton, Chicago; Treatment of Concrete Surfaces, L. C. Wason, Boston; Fireproofing, R. P. Miller, New York.

Almost a full attendance of these officers, as constituting the Executive Board, met on December 20 to map out general plans for the work of the coming season.

PANAMA CANAL UNDER CONSTRUCTION.

The concert hall of Madison Square Garden was packed to the walls to hear the lecture of Hon. Martin B. Madden, of Chicago, on "The Construction of the Panama Canal." The subject was very ably and satisfactorily handled by Mr. Madden, as his long experience in heavy contracting, excavating, transporting and disposing of waste material in mass, and especially his lifelong intimacy with canal work on the Illinois and Michigan canal, as well as the great Chicago sewage disposal propositions, all contribute to make him particularly familiar with all the details of cost, engineering etc. He gave the

scale of wages paid to each classification of labor, and spoke definitely of the amounts invested in each and every branch of the extensive equipment.

The illustrations were marvelously true to life. Steam shovels moving ten yards of rock at a stroke were shown in the act of loading dump-cars in five sweeps of the mighty digging machine, the cars moving on as filled until the train loaded was drawn out to make room for a train of empties. Half a hundred such steam shovels and as many as three hundred locomotive engines are in use on the work. A new mammoth type of disposing plow or wide-spreader was shown in action. This was attached to a locomotive having eight drive wheels and consists of steel plates attached to powerful levers in such a way that a side sweep of about fifteen feet is secured to push away the dumpage of the trainloads of rock and earth. The method of raising and moving of tracks by means of a specially built crane or traveler was exciting as well as entertaining. In fact, all of the various processes of digging the big interoceanic ditch were shown with such well-connected sequence that it almost amounted to a visit to the canal zone. No wonder that the project of building the canal across the isthmus which originated with Don Hernando Cortez in 1540 A. D. and His Spanish and German Majesty Charles, had to come down to the present day for completion, amongst the steam and air drills, the steam shovels, the perfect explosives, the cranes, travelers crushing the cement and the reinforcement of Rock Product advertisers, and last but not least, the training, the concentration and the gifted ingenuity of American engineers and experts who compose our great family of readers, and are in fact the rank of the firing line of progress to make this the greatest age of accomplishment the world has ever seen.

In tremendous applause, after nearly three hours of instructive entertainment, Mr. Madden brought his lecture to a close.

THE EXCURSION FEATURE.

Daily trips during the New York Cement Show were arranged by the excursion committee for the convenience of delegates and visitors to inspect engineering works of special significance. These excursions proved an exceedingly interesting feature and were taken advantage of by delegates visiting the cement show at Madison Square Garden from all parts of the country.

The Navy Yard in Brooklyn was visited on Tuesday. The principal point of interest is the construction of Dry Dock No. 4, where caissons have been sunk and practically completed; the battleship "Florida" under construction; ways for a new Dreadnought battleship and work in progress on Pier D.

A trip next day was taken to the Grand Central Terminal Improvement. Here were inspected a large power house, mercantile and station structures, streets carried over the yards, and all going forward while maintaining regular train schedules—nearly a hundred trains an hour at some period in the day.

Fourth Avenue Subway was the objective of a trip which delegates much enjoyed and found of great interest. Bush Terminal, which aggregates eight large tenant factories, over 100 storage warehouses, seven of the largest piers in the harbor, and railroad and steamship terminals were visited. The delegates were shown over the work now in progress, which consists of three buildings each 700 feet long, from 6 to 8 stories high.

Croton Falls Dam was inspected. It crosses the west branch of the Croton River, and is designed to form a storage reservoir of 14,865 million gallons capacity. This reservoir, including the main and diverting dams, changes of highways, etc., has cost to date about \$4,200,000.

On Saturday the Hudson and Manhattan Tunnels were inspected. Some concrete work is going on under light air pressure, and other work in the open. A good view was obtained of all varieties of railroad tunnel concrete work.

An all day excursion was made Monday to Ashokan Dam. The dam will form a reservoir which will submerge 25 square miles of territory. It will be 4,600 feet long, including the wings, the main dam including about 550,000 cubic yards of concrete. The top of the dam will be 210 feet above the old bed of Esopus creek.

On the last day of the convention trips were made to Catskill aqueduct to see the Rondout siphon work near High Falls, and to see some cut and cover work near White Plains; inspecting the foundation work of the Bankers' Trust Company building, corner Wall and Nassau streets; the Gair and Arbuckle buildings of interest as representative samples of reinforced concrete buildings in Greater New York, as well as the St. George retaining wall and other concrete construction work in the city, which were all of great interest to the delegates.

SOME THERMAL PROPERTIES OF CONCRETE.

By Prof. Charles L. Norton, Massachusetts Institute of Technology.

(Paper Read Before the Seventh Annual Convention National Cement Users' Association.)

During the last three years a series of experiments have been carried on in the Laboratory of Heat Measurements of the Massachusetts Institute of Technology, having for their object the study of those physical properties of Portland Cement Concrete which affect its value as a fire resistant material. While these researches are by no means complete, it is perhaps of interest at this time to discuss some of the results obtained.

It was proposed at the outset to make a study of the various physical properties of concrete over as wide a range of temperatures as possible, and among those selected were the following:

1. Coefficient of linear expansion.
2. Diminution of mechanical strength after heating.
3. Specific heat.
4. The coefficient of thermal conductivity.

The measurements of the coefficient of linear expansion are practically complete, but the uncertainty attaching to some of the high temperature values, though slight, makes it seem wise not to report in detail until one or two check measurements can be made. This uncertainty arises from the great difficulty which attends the measurement of the temperature of the interior of a large block of cement concrete so as to be sure of its absolute uniformity at high temperatures. Thermal junctions embedded in the block at distances of three inches from one another are not sufficiently close to give the desired precision.

The method adopted for the measurements of the elongation caused by heating was the common so-called "telescope" method. The specimens in the shape of six inch or ten inch tubes were slowly heated in a double gas muffle or an electric resistance furnace. The temperature of the furnace and of a number of points in the concrete was taken by means of platinum-rhodium couples.

Near the furnace were mounted two telescopes which might be sighted through holes in the furnace wall upon reference points on the surface of the block. At low temperatures an arc light and a system of mirrors were used to furnish adequate illumination. One of the telescopes was provided with a micrometer eye piece by means of which a movement of the reference mark of .0001" could be measured.

The values obtained at low temperatures agree very well with the commonly accepted value of .0000055 for the elongation per unit of length per degree Fahrenheit. Apparently this value increases slightly up to 575° F. Above this point the coefficient becomes smaller; at 1500° F. the coefficient becomes zero, and above this point slightly negative. On cooling the blocks which had been heated to 1500° they did not return to their original dimension, their permanent elongation being about seventy-five per cent of their maximum elongation. On a second heating the specimens all returned to the same dimensions, there being no sensible permanent elongation resulting from the second heating.

All of the specimens tested for expansion were of stone concrete, of the proportions 1-2-5. The stone was clean, the sand sharp, the cement of good quality, and every precaution was taken to secure a concrete of the first order. The specimens weighed on the average 150 pounds per cubic foot.

In order to study the effect of high temperature upon the compression strength of concrete several scores of six inch cubes were made and allowed to set for ninety days or slightly longer. These blocks were then heated for different lengths of time at different temperatures in a gas furnace similar to that used for the expansion experiments.

The cubes which were not heated showed an average compression strength of 2,700 pounds per square inch. Those which were heated to 932° for two hours lost only 15 per cent of their original strength, and when this temperature was prolonged for four hours the loss was 43 per cent. If the blocks were heated to 1500° for two hours the loss of compressive strength was 38 per cent and at the end of four hours the loss was 66 per cent. The most important information secured from these tests was to the effect that even after exposure to a fire in which the concrete block, small in size, was subjected to flames at a temperature of 1500° for four hours, it was still able to carry twice its normal safe load in compression. The larger beams with their great masses are not often exposed for so long a time to so great a hazard.

It should be noted, however, that there was a considerably greater deformation under load of the heated blocks than of those not heated.

A large number of small beams were next made, some with and some without reinforcement; most of these were either 6" x 6" x 48" or 8" x 8" x 48". The specimens which were reinforced contained four 1/4"

round steel rods situated near the corners, equidistant from the two faces of the beam. In some the distance from the steel to the face of the beam was 1". In others 1½", and a few beams had a two inch protection to the steel. Not many of these specimens have been tested as yet, but, from a few, we are able to get a general idea of what happens to beams of this type in case of exposure to fire.

A set of three beams for instance, each 6" x 6" x 48", in which the reinforcing rods were one inch from the face of the beams were broken by center load, the first beam not having been heated at all, the second heated for one hour in a fire that fused the surface of the concrete, and the third being similarly heated for two hours. The beam which was not heated broke under a load of 5,700 pounds; the second, heated for one hour, broke at 2,750 pounds, and the third, heated for two hours, broke at 1,950. I consider this a most remarkable showing under severe conditions. It should be borne in mind that these small beams were so slow in cooling down that they were in effect heated much longer than the time mentioned. The flames, moreover, surrounded the beams on all sides.

Several similar tests were made with concrete beams of the same dimensions 6" x 6" x 48", with no reinforcement. These were heated for two and four hours at 1700° F. After this exposure all of the beams were very frail. Not one of them showed any cracking or spalling, however. It was not considered necessary to break any of these beams, as it was apparent that the concrete on the tension side of the beam was much weakened. Some of the more recent experiments made on beams 8" x 8" x 48" show that these larger beams are much less weakened, proportionally, as would be expected to be the case.

A series of similar beams were next made up of cinder concrete, the proportions of the mixture being 1-2-5. A portion of these were mixed with clean cinders, which showed upon analysis but little carbon; a second part was mixed with cinders to which ten per cent of fine bituminous coal had been added and the other beams were mixed with cinder to which had been added 25 per cent of fine coal. The twenty-five per cent mixture can be disposed of in a word. When once thoroughly heated it burned until it fell to pieces. With the ten per cent mixture, however, no such action occurred; there was no indication that the concrete would support its own combustion even for a short time. It was apparent that the ten per cent mixture was not so good a fire-resisting material as that which contained no added carbon. From the few specimens containing less than ten per cent which have been examined up to the present, it seems probable that the safe limit is close to five per cent. More data is now being secured on this point.

The study of the specific heat of concrete was made by the ordinary calorimeter method, the "method of mixtures" of Regnault. Specimens of the concrete, usually fragments of the larger test pieces, were heated slowly in an electric resistance furnace to the desired temperature and then plunged into the calorimeter. The weight of the water and its rise in temperature give the amount of heat given off by the body in cooling.

Extraordinary precautions were taken in getting the exact average temperature of the specimen in the furnace, and to insure its rapid transfer to the calorimeter. In most of the experiments a double calorimeter was used, so that the specimen did not come in contact with the water of the calorimeter, so that any evolution of heat by hydration of the cement was avoided. The following tables give the specific heat of concrete:

SPECIFIC HEAT.

Temperature	Stone Concrete 1-2-5	Stone Concrete 1-2-4	Cinder Concrete 1-2-4
72° to 212°	.156	.154
72° to 372°	.192	.190	.180
72° to 1172°	.201	.210	.206
72° to 1472°	.219	.214	.218
72° to 2172°

The measurements of thermal conductivity were made by a number of methods and have taken far more time and energy than all the others put together. The thermal conductivity is that property which determines how rapidly heat will travel through a substance and how rapidly therefore objects beyond will be heated by transmission. The conductivity becomes of prime importance in all questions of protection of the steel in reinforced concrete buildings. There is very little data to be found as to this important property of any of the common materials of engineering and such data as is to be found is not at all concordant. As to the conductivity of concrete or its variation with temperature and with composition, practically nothing has been known.

The methods adopted for the measurement will be described in full in papers now being submitted to one of the scientific societies for publication and it

probably will not be of interest here to more than outline them.

The formula showing the relation of the temperature upon the two sides of a plate to the amount of heat which would flow through it is as follows:

$$Q = \frac{K \cdot (t_1 - t_2) \cdot A \cdot s}{d}$$

or

$$K = \frac{Q \cdot d}{(t_1 - t_2) \cdot A \cdot s}$$

where

K = the coefficient of thermal conductivity, dependent upon the nature of the material and its temperature.

Q = the quantity of heat flowing through the plate in the area measured.

A = the area.

t₁ = the temperature of the hotter side of the plate.

t₂ = the temperature of the cooler side of the plate.

d = the thickness of the plate.

s = the time during which Q units flow through the area A.

The formula will be seen to be merely an expression of the following relations, that the flow of heat is proportional to the area, to the temperature, and the time, and that it is inversely proportional to the thickness.

After spending many months in developing other methods the electrical method used by the writer for the past fifteen years in studying the flow of heat through steam pipe coverings was adopted. The value Q of the heat flowing was determined by supplying the heat by means of the heating of a conductor carrying a current of electricity. By measuring the electrical energy supplied the quantity of heat developed may be known with great precision. Further, if this heat is passed through the plate under test and into a calorimeter on the far side, a check upon the value Q may be had. For the determination of the temperature difference thermal couples, resistance thermometers, and mercury thermometers were used, but thermal junctions made of thin strips of copper and nickel or of platinum and platinum-rhodium were generally found most serviceable.

The apparatus used for the lower temperatures consisted of a thin, electrically heated plate, to the two sides and edges of which concrete could be applied. Outside of the concrete there was then placed heavy copper or brass plates which could be kept at a constant temperature by an internal circulation of water. Thermal junctions were placed at several points on each surface of each concrete plate. The electrical input was measured by calibrated Weston instruments. The calibrated thermal junctions gave the value of the temperature difference to the nearest one-one-hundredth of a degree. For the thickness, numerous measurements were made by a pair of flat-nosed calipers and averaged.

It was necessary to keep this apparatus running for several days before it could be balanced—that is, before the rate of flow of heat outward through the plates became constant and equal to the electrical input. The number of measurements has now reached many hundreds, and it seems apparent that the precision of the method depends on the accuracy with which the thickness of the specimens can be maintained constant. Otherwise the accuracy is better than one per cent. This apparatus has been named by my assistants the "flat-plate tester" and perhaps it is well to so designate it here.

Later, in order to make tests on plates as thick as some of the walls in common use, another method was adopted. Cubical boxes 36 inches in outside dimensions were built with walls of several thicknesses. Inside the boxes were placed electric heaters, which served to raise the inside surface to a temperature above that of the surroundings. A small fan served to keep the air in the box stirred to insure uniformity of temperature throughout. The boxes were tightly sealed. The power supplied to both heater and fan was measured as before. Mercury thermometers and thermal junctions, as well as a Callender recording resistance thermometer, were used to measure the difference in the temperature inside and outside of the box. Data has been secured on scores of specimens and it is practically identical with the results obtained by the flat-plate tester.

For the high temperatures a modification of the entire process was found necessary. The concrete to be tested was cast in the form of a cylinder on the outer surface of and concentric with a steel bar, which could be heated to a high temperature by the passage of a heavy current. Outside of the cylinder of concrete was applied a closely fitting "continuous" calorimeter. The temperature of the bar and of the calorimeter were measured by thermal junctions, and the amount of water and its rise in temperature gave the value of Q.

In order to guard against the uncertainty of the temperature at the ends of the bar, the calorimeter was made so as to enclose only about one-half the length of the bar, the rest being covered by guard rings similar to the calorimeter but without any provision for the measurement of the quantity of water.

The heating of the bars required a considerable amount of special apparatus, since it was necessary to provide a current of upwards of 2,000 amperes for the high temperature, and to be able to vary its amount to any desired value below that point. For this purpose there were installed three 15 K. W. transformers connected on the primary side with a three-phase 2,300 volt circuit. By means of divided secondaries and a rather elaborate arrangement of switches, the secondary voltage could be varied from 190 volts down to 55 volts. This secondary voltage was applied to the primary of a second step-down transformer, whose secondary was divided into twenty coils. By means of a switchboard the entire output of the transformer could be had at almost any desired low voltage. This enables us to heat bars insulated by materials of different composition and of different thicknesses to any desired temperature up to 2,800° F. With this arrangement both the steel and the concrete can easily be melted.

The results obtained are tabulated below. It is to be regretted that there is no uniformity of practice as to the units to be adopted in reporting the measure of effectiveness of insulators. While the physicist renders his report in calories per square centimeter, per centimeter thickness, per 1° Centigrade per second, the steam engineer confines his observations to B. T. U. per hour, per square foot, per inch of thickness, per 1°F., and the refrigerating engineer reports on the basis of a 24-hour time unit. I have even seen a report in terms of hogheads of water raised to the boiling point, time not stated.

THERMAL CONDUCTIVITY OF CONCRETE.

Temperature of hot side of plate.	Mixture.	Coefficient of thermal conductivity per sq. cm. per second.	Coefficient B. T. U. per 1°F. per sq. ft. per in. thick per 24 h.
35° 95°	Stone 1-2-5	.00218	150.
50° 122°	Stone 1-2-4 not tamped	.00110	78 to 114.
50° 95°	Cinder 1-2-4	.00081	56.
200° 392°	Stone 1-2-4	.0021	146.
400° 752°	Stone 1-2-4	.0022	153.
500° 932°	Stone 1-2-4	.0023	160.
1000° 1832°	Stone 1-2-4	.0027	188.
1100° 2012°	Stone 1-2-4	.0029	202.

A brief comparison of these values with those for other materials may be interesting.

The specific heat of concrete is slightly less than that of either red brick or fire brick, hence the same amount of heat needed to raise the temperature of a pound of brick is about 10 per cent more than for a pound of concrete. But the density of concrete is enough greater than that of brick to raise the heat capacity of a cubic foot of concrete above that of brick. The difference is not large, however.

While the expansion data is not complete, it seems clear that for a time after the beginning of exposure to fire the concrete and its reinforcement will expand at much the same rate, but that the further expansion of the surface will not proceed at so rapid a rate. This will tend to reduce the stresses which the expansion of the heated surface would otherwise set up in the cooler interior. It is perhaps because of the failure of the concrete to return to its original dimensions that the small amount of surface cracking found after a fire is due.

The experiments made with coal and cinder mixtures indicate the necessity of added care in the selection of cinders for this purpose.

The tables of thermal conductivities give us data as to the rate at which heat will travel through concrete. It is interesting to note the great difference between the tamped and the untamped concretes made from stone. The one was as porous as possible, and the other as dense. One transmits nearly twice as much heat as the other. The cinder concrete, as is commonly believed, is much better as a heat insulator than the stone concrete, being nearly three times as effective as the denser stone concrete in retarding the flow of heat. It may be interesting to call attention to the heat insulation afforded by other materials. The best of the commercial articles used for this purpose is compressed cork, which is nearly twenty-five times as effective as stone concrete. Steel, on the other hand, transmits heat from 75 to 100 times as fast as the densest of the stone concrete.

Geo. C. Wright, of Rochester, N. Y., who gave the Association an account of his concrete paving cubes last year, reported great progress in that specialty during the last season. This confirms the deductions upon which he built his paper last year.

THE CLEVELAND CONCRETE BUILDING COLLAPSE.

Cleveland, O., Dec. 20.—At this city on the evening of November 22, there collapsed a four-story concrete building, in the ruins of which four were killed and eight injured. In the city of Cleveland at present, a commission consisting of two engineers, two architects and two practical building contractors is investigating the disaster with a view to determining the exact causes which led up to it.

The investigating committee consists of W. O. Henderer and B. R. Leffler, representing the Cleveland Engineering Society; Herbert B. Briggs and Victor Thebaud, representing the Cleveland Chapter of the American Institute of Architects, and James R. Gloyd and J. C. Skell, two practical building contractors, who have erected many concrete structures. These men, acting with Director Hogen, of the city's public safety department, are endeavoring to fix the blame for the catastrophe.

The building tumbled down like a pack of cards about 7:30 in the evening. No one was in it at the time, but a small house next door was crushed to the ground, four persons who were eating supper in a room on the second floor being crushed and eight persons on the ground floor being severely injured. Engineers and spectators who saw the ruins say the building was the most complete of any wreck they had ever seen.

The structure was 90 by 110 feet in size, and four stories in height. It was entirely of reinforced concrete with the exception of curtain walls of brick and chimneys of the same material. One wall of an old building which had remained standing after a bad fire which had wrecked it some months ago, was still standing when work on the concrete building was begun, and it was utilized for the west wall.

Although the committee investigating the matter will not make a formal report until about the holiday season, much of the evidence which was taken before it indicated very clearly that inefficiency on the part of workmen, poor materials and a total disregard of the basic rules governing concrete construction were responsible for the disaster.

The contractor, for instance, told the superintendent representing the architects that it wasn't at all necessary to anchor the floors to the side walls as the walls were heavy enough to keep them in place without anchoring. Although the Cleveland building code strictly prohibits the stopping of slabs in the middle when workmen quit pouring concrete for the night, many slabs in this building were set partly in the afternoon and completed on the following morning. The same was true of many of the structural beams.

In connection with the reinforcing of the beams and pillars it was found that in bending the steel rods many of them had broken, but had been thrown into the beams nevertheless, and covered up before the superintendent could order them out. The cheapest kind of Italian labor was used throughout the construction of the building, even in the setting of the reinforcements.

The architects' superintendent, in testifying before the investigating commission, said that one morning he visited the building and found seven loads of yellow sand near the concrete mixer. He examined it and found it to be about half clay and loam. He ordered it off the job. Next morning when he came again it was gone but he didn't know whether it had been used in the building or not.

Witnesses testified that they had complained to the contractor about the poor materials which were going into the building and that broken reinforcing rods were being used, but he told them to keep to their own business, cover things up and hurry the work along as the owner of the building wanted to get into it to take advantage of the Christmas furniture business.

Evidence was presented to show that in the cellar sand had been excavated from around the base of supporting pillars. Investigating committees believe that possibly some of the foundations shifted and that the building came tumbling down because of that fact.

Utter disregard of the superintendent on the part of the workmen was shown in the removing of centering on forms on the third and fourth floors many days before it should have been taken down. The month of November was a particularly raw and unpleasant one, and concrete failed to set properly in the twelve or fifteen days usually allotted for this purpose. Nevertheless the forms were removed while the concrete was still quite green. Workmen testified that they sank heel deep into the soft "mud" in several places on floors in the upper part of the building.

This was the kind of workmanship employed in the erection of the building which tumbled down. Experts who looked into the construction work marveled that it stood up until it reached the fourth floor. Insurance men are taking a deep interest in the investigation, for while this particular building was not insured, it doubtless would have been in a few days. Two experts representing the National Association of Fire Insurance Underwriters spent several days in Cleveland looking into the matter. It is likely, also, that the disaster will cause a complete revision of the Cleveland building code insofar as it relates to the erection of reinforced concrete buildings.

LOUISVILLE CONCRETE NEWS.

Louisville, Ky., Dec. 15.—The concrete contractors and engineers have had to throw up their hands on account of the cold weather which now has control of things all over this section. There are a lot of big enterprises in hand which have been delayed as the result of atmospheric conditions, and there will be no resumption of activity generally until after the extremely cold weather lets up.

The McCormick-Brainerd-Combs Construction Company of St. Louis, has, however, not allowed the weather to interfere with the job of putting up the reinforced concrete frame of the Tyler Hotel at Third avenue and Jefferson street. There was a lot of delay in connection with the work before the present contractors took hold of it, and they did not propose to lose any additional time. They have protected the work with tarpaulins so as to prevent the wind from having any effect, and they have also kept fires going all the time. This has prevented the concrete from freezing, and while the job is more expensive and takes longer than under ordinary conditions, the hotel is going up in spite of Mr. Weather Man. Superintendent Banks believes that the concrete will be found to have set perfectly.

John W. Klein, the caterer and confectioner, is about ready to move into his new building on Fourth avenue, near Walnut street. This building, which was designed for him by Loomis and Hartman, architects of this city, is really composed of two parts. The front part, of non-fireproof construction, contains the salesrooms and banquet hall, while the rear part, which is strictly fire-proof, is given up to the service departments such as the ice cream factory, kitchen, pantry, candy shop, etc. The rear portion of the building is 25 feet 6½ inches by 74 feet in plan, and five stories and a mezzanine in height. The frame and floor slabs are of reinforced concrete, and the enclosing walls are brick carried on wall beams. The first floor is supported by a row of columns down the center of the building, but all other floors are carried on beams which span the entire width of the structure. Owing to the fact that the lot is an interior one, and that heavy buildings abut it on both sides, it was necessary to make the footings for the columns of the cantilever type, 3 feet 6 inches deep, and heavily reinforced with steel. The floor slabs are designed to carry a live load of 200 pounds per square foot, and are 6 feet thick, reinforced with ½x½ inch bars, 7 inch centers, every other bar being bent up at the ends. Under the oven (weight 130,000 pounds) in the bakery on the third floor, the thickness of the floor slab is increased to 10 inches, and the reinforcing is ¾x¾ inch bars, 8½ inch centers. The floor beams are about 10 feet on centers, and, except under the oven, are an average size of 12x30 inches. On the third floor, where they carry the weight of the oven, they are 16x32 inches and 18x30 inches in size. All the beams are properly reinforced against shear at the ends by turning up some of the bars and adding stirrups where necessary. The stairways and the elevator are well enclosed in 4-inch concrete walls, and all windows are of metal, glazed with wire-glass. Openings to the elevator are covered with Kinnear rolling steel doors. In short, all care has been taken to make the building as nearly fire-proof as possible. The National Construction Company of Louisville was the general contractor and designer, and constructed all of the concrete work.

The Raymond Concrete Pile Company of New York and Chicago has been awarded the contract for the foundations of the pedestals and walls of the bridge to be built at Glisan street, Portland, Ore., for the Oregon Railway & Navigation Company.

Wm. Sewell, of Sunderland, England, well known to the members of the National Lime Manufacturers' Association, is visiting his daughter in Chicago.



The National Lime Manufacturers' Association

Meets Semi-Annually.

William E. Carson, Riverton, Va. President
A. Newton, Chicago First Vice-President
F. M. Palmer, Jr., New York Second Vice-President
F. P. Hunkins, St. Louis Third Vice-President
C. W. S. Cobb, St. Louis Treasurer

Official Organ, ROCK PRODUCTS.

LIME MANUFACTURERS.

National Association Making Plans For the Next Annual to Be Held at Pittsburg.

A letter from President William E. Carson, Riverton, Va., states that the next annual convention of the National Lime Manufacturers' Association will probably be held in Pittsburg, Pa., February 7th.

This date will probably not conflict with any of the other big conventions, and Pittsburg has proved itself to be a most appropriate convention city.

OUR MOUNTAIN CHIEFTAIN'S CALL.

To the Lime Manufacturers of the United States, Greeting:

The annual meeting of the National Lime Manufacturers' Association will be held at the Fort Pitt Hotel, Pittsburg, Pa., February the 2d and 3d, and every lime manufacturer in the United States is invited to attend.

The Lime Manufacturers' Association has grown to such a size and has such a grip on its work that it no longer makes any difference with them whether they receive assistance and encouragement from manufacturers outside of the association—in fact, the invitation we extend is out of courtesy, and we will not be the least bit hurt if manufacturers outside of the association do not come to the meeting; at the same time, if they do come they will receive a cordial welcome and we will be happy to have them. Were it not for the fact that the National Lime Association was started as a vehicle through which all the lime manufacturers and the lime business in general could be benefited, and that it holds to this policy, its lists would be closed against other members, as it is accumulating such information as is invaluable to a lime manufacturer.

I am not going to divulge all that we have done in the lime investigation, as this information belongs to the members, and the only way you can get it is through becoming a member. I will simply state some of the titles and character of a few of the papers that will be offered at the meeting.

Every member of the National Lime Manufacturers' Association will be on hand, because they know the value of the work and because they are live enough wires to be members; and, of course, any lime manufacturer who is outside of the association that does not wish to come is just that much less equipped to take care of himself in the general fight for better and cheaper quality of goods, more efficient manner of handling and superior salesmanship. So, Mr. Manufacturer, the National Association is big enough, strong enough and progressive enough not to care one rap about whether you come or don't.

Among other papers that will be offered might be mentioned Warren E. Enley's story of the work he has been doing during the last year in the United States laboratories on lime investigation.

This paper will describe the methods of testing, the apparatus used, a compilation of results obtained, with a discussion of their interpretation. These tests include content of carbon dioxide, rate of hydration, crushing strength, tensile strength, sand carrying capacity, plasticity, hardness, color, time of set, and constancy of volume.

Prof. A. V. Bleining, another U. S. government expert, will treat of the burning temperature of

limestone, as shown by thirty-seven different samples of limestone burned at seven different temperatures. The limes so produced were tested for specific gravity, porosity, content of carbon dioxide and rate of hydration. A correlation of the results obtained is given and conclusions drawn as to the most satisfactory burning temperature.

Harrison E. Ashley, the discoverer of the plasticity test in clays, will treat on plasticity in lime in his paper; also on the question of hardness.

Mr. Ashley has invented a machine to determine the hardness of lime, etc., which overcomes many of the objections that have been raised heretofore, and gives results of great industrial value.

We are also going to have papers on "The Gas Producer." It is probable that Mr. White, of R. D. Wood & Co., will lead off on this subject and be followed up by Mr. Schmatolla. Many manufacturers are just waiting and itching to get into this discussion, and it is going to be very fine.

Another U. S. engineer, probably Mr. Wigg, of Atlantic City, N. J., will discuss the use of hydrated lime in Portland cement mixtures, one of the big growing fields for lime, that should be cultivated.

Mr. Wightman, an advertising expert, will give a talk on the "Principles of Advertising," with particular reference to our association, and I am arranging to get Mr. Sheldon, president of Sheldon's School, to make a speech on "Salesmanship."

You can look for a good warm paper from Charles Weiler on the "Folly of Price Cutting," and when Perry, of New York; Warner, of Wilmington; Stevens, of Tyrone, and our own Peter (Martin) get in the mix-up, you can expect fur to fly. Down here, south of Mason and Dixon's line, we would call it "canine eat canine"—anyhow, good will come out of it.

Henry S. Spackman will tell the story of Alca, which is a product he has invented, which can be used in hydrated lime and puts hard wall plaster, our old enemy, out of business. You simply cannot afford to miss this paper and the information Mr. Spackman has to offer.

On the Agricultural end we are going to have some great papers. Hopkins, of Illinois, the progressive and militant force that is bringing the lands of the middle west back to their former high state of cultivation, will offer a paper on "Soil Fertility and Its Relation to Continued National Prosperity." A hint here—Mr. Hopkins believes that it is through our product that this alone can be accomplished.

Prof. Fippin, of Cornell University, who set the Convention wild last February, will offer a paper on "A Study of the Agricultural Use of Lime," dwelling particularly upon the calcium-magnesia ratio, the factor of texture, application, etc., and then will come a paper by Irving Warner that is going to be one of the features of the meeting. His paper will be on "Lime's Position in the Chemistry of the Soil." The nature of this paper will be a summary of all the materials that the soil needs, showing how lime fits in, with an idea of showing lime manufacturers how their product should be sold in a broad way in conjunction with other plant foods, fertilizers, etc., and not in antagonism to them.

These are just a few of the papers. I haven't said anything about the papers on lime-kiln construction, the hydration problem, etc., etc. I only have outlined a few so that you might know our next Annual will be the greatest in the history of the association. We have real meat to chew.

Yours sincerely,

WILLIAM E. CARSON,

President National Lime Manufacturers' Association of the United States.

CHICAGO LIME NEWS.

Probably the cold weather has affected the trade in lime more than anything else. Business is slack this month, although collections with the majority of the lime dealers are good. The outlook for 1911 is in keeping with the prospects of the other building supplies and seem to be good.

C. C. Bishop, secretary of the Marblehead Lime Company, 55 State street, said: "Collections are very good, but they seem to be all that are so, the business being slack because of cold weather. We find this month's business about the same as last December's. Have not thought much about the 1911 season; it's too early."

J. J. Pleas, vice president of the Chicago Union Lime Works, was feeling a little bit blue on the day a representative of ROCK PRODUCTS visited him. He said business was dull and collections poor, but nothing more could be expected at this time of the year with such weather. Mr. Pleas admitted, however, upon further questioning, that the next season's prospects "looked good" to him.

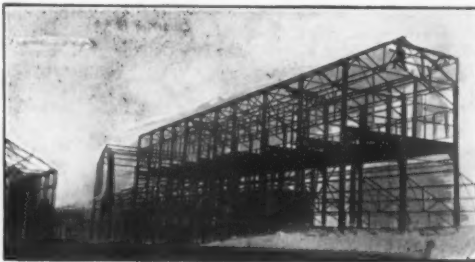


UP TO DATE GYPSUM PLANT.

Toledo, Ohio, December 20.—The picture shown on this page, which was taken early this fall, shows the steel work of the new modern fire proof gypsum mill now nearing completion near Gypsum, Ohio, and erected and owned by The Fishack Gypsum Company, whose general office is at Toledo, Ohio. The building of this big plant has been made necessary owing to the growing demand for the brands of wall plaster manufactured by this company and the increased consumption of gypsum products.

It will probably be of interest to know that the Messrs. Fishack, who are the active people in The Fishack Gypsum Company, are all practical wall plaster men, having been engaged in the wall plaster business all their lives, first as plasterers, then as contracting plasterers and as manufacturers of hard wall plaster and gypsum products.

On account of gypsum being the base of all hard wall plaster and in view of the fact that the gypsum rock produced in the Ohio field is of very high quality, this company opened up gypsum mines and were instrumental in erecting a gypsum mill at Port Clinton, Ohio, in 1903. However, on account of the increased business and also that they fully realize the future there is in the hard wall plaster trade, they are now completing the new modern gypsum mill of concrete and steel construction near Gypsum, Ohio. No expense has been spared to make this mill up to date in every respect as well as strictly fire proof, and owing to the fact



FISHACK GYPSUM CO., GYPSUM, OHIO.

that they control and own a large acreage of land producing a very high grade of gypsum rock, the source of supply is a permanent one.

Owing to their practical experience, the Messrs. Fishack know what kind of material the mechanic desires. The Fishack Gypsum Company have always gone on the principle that quality comes first and their material is well and favorably known by architects, dealers and plasterers throughout the central states.

This company erected their mixing plant at Toledo, Ohio, in 1894, and one in Fort Wayne, Indiana, in 1902, so this shows the progress made and also means that the Messrs. Fishack are pioneers in hard wall plaster trade, and their material has stood the test of time.

With the completion of their new Gypsum Mill near Gypsum, Ohio, their capacity will be very much increased, so that they should be in shape to make prompt shipment of all their orders, and during the busy season this is a point that means a good deal to the dealer or contractor, for if they can be satisfied that they will have their orders filled promptly, they naturally can complete their work to much better advantage. The Fishack Gypsum Company have mixing plants at Toledo, Ohio, and Fort Wayne, Indiana, as well as gypsum mills near Gypsum, Ohio, and they are able to make prompt shipment as well as furnish mixed cars of wall plaster, finishing plaster, and in short, everything that is needed for the plastering of buildings.

This company also operates one of the best sand boats on the Great Lakes and is a large shipper of lake sand.

The Fishack Gypsum Company manufacture prepared sanded wall plaster, pulp plaster, wood fibre plaster, gypsum cement plaster, plaster of paris, prepared white finish, wainscoting finish, plaster board, stucco, ground gypsum and land plaster, and are not dependent upon anyone, as they are also producers of the important ingredi-

ents entering into their wall plasters. While the wall plaster end of their business is the most important, yet there are a great many uses for gypsum in various forms, among which might be mentioned the manufacture of Portland cement, pipe coverings, paint, pottery, wall tints, crayons, fertilizers, etc., and the rock produced by their gypsum mills has been found suitable for all those purposes.

The Fishack Gypsum Company gets out a pamphlet which is very interesting to anyone engaged in the building supply line, as well as to architects and plasterers, and they are always willing to furnish them upon application.

ST. LOUIS PLASTER NEWS.

St. Louis, Dec. 14.—Sales Manager Steeg, of the Acme Cement Plaster Company, reports that the company finds its tonnage for 1910 is greater than for the previous year, and that he is willing to risk his reputation as a reliable prophet, that at the close of 1911 he will be able to make a similar report concerning the business of the coming year.

James H. Strother, sales manager of the Acme Woven Lath Company, states that the company has made during the past year very satisfactory progress in the introduction of their new style of lath. Mr. Strother showed the ROCK PRODUCTS man a fine photograph of a large factory building located in the state of Ohio, where Acme woven lath was used on the building.

GYPSUM ON CAPE BRETON ISLAND, NOVA SCOTIA.

For a number of years New Brunswick, southern Nova Scotia, and more recently Cape Breton have supplied a large portion of the gypsum consumed in the United States. Owing to the reduction in the tariff on gypsum imported into this country, which reduction is from 50 to 30 cents per ton on the crude, and from \$2.25 to \$1.75 per ton on the calcined material, there is no doubt but that added interest will be given to this industry in the localities mentioned. There are two companies engaged in quarrying gypsum on Cape Breton at the present time, namely, the Victoria Gypsum Mining & Manufacturing Company, operating at Saint Ann, Victoria County, and the Great Northern Gypsum Company, at Eastern Harbor, Inverness County.

PORTLAND HAS LARGE PLASTER COMPANY.

The Western Lime & Plaster Company has been organized at Portland, Ore., with a paid-up capital of \$350,000. The company is erecting a large plaster mill with a daily capacity of 400 tons of hard and finishing plaster and two lime kilns, one at Lime, Ore., and the other at Huntington, in the northern part of Baker County. Charles F. Beebe, president; Charles E. Ladd, vice president and treasurer; M. B. Wakeman, secretary, and W. E. Hay, general manager.

WEST COAST PLASTER NEWS.

San Francisco, Cal., Dec. 15.—M. J. Terranova has taken a contract for plastering, ornamental plaster and staff work, artificial stone and Keene cement work on the new River Bros. Building, on Golden Gate avenue, at \$11,700.00.

The Michigan Gypsum Company is building a new mill in Grand Rapids, Mich., to cost about \$75,000, and will mine its gypsum instead of quarrying it. Schliers, Hodgkins & Bachman, of Grand Rapids, have the contract to build the mill and have already put down the shaft for the mine.

R. W. Worth, representing the Dayton Fiber Plaster Company, of Dayton, O., has opened offices in the Chamber of Commerce building at Cincinnati, O., and is looking for warehouse facilities.

A booklet catalog has recently been issued by the Ohio Ceramic Engineering Company, with offices in the First National Bank Building, Chicago, Ill. The catalog is entitled "Steel Dump-Mine Platform Cars," but besides these cars the company manufactures industrial cars and quarry cars. They have a complete line of quarry cars and make a specialty of their manufacture. The catalog contains fourteen illustrations showing details of the different cars and the easy manner in which they can be operated. They make cars with either bottom dumps, lifting end gate or swinging end gate. In addition to the different types of cars manufactured by the Ohio Ceramic Engineering Company they carry a very complete line of contractors' supplies.

SAND-LIME BRICK

SEVENTH ANNUAL.

Rousing Meeting at Detroit in Which the Principle of Mutual Co-operation Prevailed.

In accordance with announcements made one month ago the American Association of Manufacturers of Sand-Lime Products held its seventh annual convention in the Wayne Hotel at Detroit, Mich., on December 6 and 7. There was a good attendance of the faithful and most successful brick-makers of the United States and Canada, all of whom participated in the proceedings, with the result, which is usual in this organization, that every member got what he came after in the way of information and a whole lot more in some cases. There was more enthusiasm at the time of adjournment than when the meeting was first called to order.

The experiences of the manufacturers, as expressed from every quarter, clearly demonstrate a most satisfactory condition of the industry. It is clear that all members of the association are making "mighty good brick," lots of them, and consequently at a profit. No little part of this felicitous condition is attributable directly to the co-operative work of the association, as attested to by many of the speakers.

A full budget of further progress was mapped out for the campaign of the coming year, and with brighter prospects and a still brighter future ahead, the sand-lime products are more firmly established upon merit alone than any other parallel building material.

THE MEETING IN DETROIT.

While the official proceedings of the association are held for the exclusive use of the members, by constitutional ruling, the following sketch will possibly satisfy non-members. (As a matter of suggestion, there should be no non-members among people who manufacture sand-lime brick.)

The meeting was called to order by President S. O. Goho in a forceful and graceful address, by which he opened the doors to all qualified to sit in the meeting, with a cordial invitation to "talk right out." Secretary Fred K. Irvine and Treasurer W. E. Plummer, Jr., read their reports, which were referred to the auditing committee. Later these were reported and approved.

The "Question Box," in which written queries by the members are brought before the committee of the whole for discussion and which has always proved of great interest and benefit, was introduced. It was later found impossible to take up this important feature owing to the press of other matters that crowded the minutes of the active session. The contents of the "Question Box" was referred to a new standing committee, of which the secretary is the chairman, and may be properly named the Committee on Official Information. In this way and by this committee the "Question Box" idea is broadened and made available all the year around to members of the association, who may need technical or commercial advice intimately connected with the industry. This is very progressive and practical—in fact, it places the American Association ahead of all industrial voluntary organizations in a very important feature that is worth dollars and cents to the members.

Walter Godart opened the subject of "Manufacturing and selling conditions compared from the local standpoint." The subject was handled ably, in detail, giving facts and figures as well as costs from actual records. Mr. Godart per se represented Minneapolis and vicinity. Supplementary to this subject, F. B. Allan, of Toronto; H. B. Skeele, of Savannah, Ga., and W. H. Crume, of Dayton, O., developed comparative differences of conditions.

H. B. Skeele took the chair for the confidential discussion of matters of particular interest to people in the industry. The Round Table was participated in by almost every member, and it was one of the numbers that several said was well worth all the price of admission.

The second day's session began with the subject of "What is the most satisfactory way of storing, shipping and delivering brick." Opened by E. M. Loewenthal, with an able description of the methods he has developed in his face-brick plant at Rockaway, N. J. Supplementary to this, Mr. Godart, of Minneapolis; Mr. Jackson, of Saginaw; Mr. Findlay, of Winnipeg; Mr. Allan, of Toronto, and Mr. Burchfield, of Rochester, each contributed valuable suggestions and gave full data.

L. W. Penfield took the chair for a Round Table session devoted to the "Improvements and Developments of the Industry." It was a very valuable part of the meeting, as it got right down to the technique of the handling of materials. Mr. Simpson, Mr. Plummer, Mr. Burchfield, Mr. Jackson, Mr. Berg, Mr. Bovey and others came into the arena prominently during the session.

W. E. Plummer, Jr., gave his second season's experience with the wet pan, being further developments in this new way of grinding sand.

H. G. Field opened the subject of "Hydration of Lime for Brick Making," taking for the same his own experience and gratifying economy. The matter was further discussed by Mr. Simpson, Mr. Emely and Mr. Jackson, and the usual differences of opinion on the lime question were in evidence. President Goho called on the executive committee by districts for their respective reports. All of these were most encouraging.

The following officers were elected for the ensuing year: President, S. O. Goho, Waltonville, Pa.; vice-president, W. D. Schultz, Brantford, Ontario, Canada; secretary, W. E. Plummer, Jr., Buffalo, N. Y.; treasurer, John L. Jackson, Saginaw, Mich. Executive committee: Eastern district, E. M. Loewenthal, Rockaway, N. J.; central district, L. W. Penfield, Willoughby, O.; southern district, H. B. Skeele, Savannah, Ga.; western district, Walter Godart, Minneapolis, Minn.; Canadian district, F. B. Allan, Toronto, Canada.

Dr. James S. MacGregor, of Columbia University, New York; Warren E. Emely and Fred K. Irvine were elected honorary members.

ANNUAL BANQUET.

Owing to the success of the banquet held at the last convention and the appreciation of the social side there brought out, it was by common consent that there will always be a banquet at future conventions—in fact, it is simply a nice little dinner where everybody can fraternize and relax the mind from what is otherwise a very hard working convention.

W. E. Plummer acted as toastmaster and the job fits him well, for he is himself the toast of the whole organization. There were just forty covers and that many appetites. The feast of things intellectual was participated in by the following gentlemen: Mr. Goho, "A Word of Welcome"; Mr. Loewenthal, "Down Jersey Way"; Mr. Godart, "Friends and Enemies"; Mr. Allan, "Caught with the Goods"; Mr. Findlay, "The New Northwest"; Mr. Burchfield, "How It's Done"; Mr. Penfield, "The Poetry of Brickmaking"; Mr. Urschel, "Something New in Practical Enamel"; Mr. Carmichael, "Bricks Made from Lava"; Mr. Skeele, "On the Sunny South." It was one of those good things that everybody appreciated fully and gives the whole meeting a good taste to go with the other benefits.

EXHIBIT FEATURES.

Practically every member complied with the custom of the organization by sending in samples of brick and materials. The display was the best from every standpoint that has ever been presented.

Comes now the great surprise of the meeting. Enameled and perfectly burned sand-lime bricks and decorative tiles were exhibited by J. J. Urschel, of Toledo, O., who, it seems, has been working for months in conjunction with W. J. Carmichael and the American Clay Machinery Company to perfect this wonderful process. Every member was deeply interested, for the exhibit was so comprehensive as to show that the plan is practical and out of the experimental stage. Mr. Urschel explained that his company is now building a plant near Toledo to make this product, and that all will have a chance to get into this branch as soon as the details can be worked out in a business-like way. Our readers will see more of this wonderful improvement later on. It goes without saying that both Mr. Carmichael and Mr. Urschel were the center of attraction for a large portion of the inspection periods.

SAND AND GRAVEL

PITTSBURGH SAND AND GRAVEL NEWS.

Pittsburgh, Pa., Dec. 15.—The Unity Sand & Stone Company, capital \$40,000.00, has been chartered with headquarters at Greensburg, Pa., by Frank B. Miller, E. M. Gross and J. H. Gallagher, of that city.

The Burdell Silica Sand Company, which was recently organized, has started to develop a deposit of molding sand, near Dundee, O. The plant of the company is well equipped and a number of contracts with leading foundries of the state have already been made through the efforts of Foster G. Burdell, manager. The other members of the company are Herbert N. Meyers, John F. Bechtel, Ralph N. Harris and John F. Alburn. The company has a capital of \$25,000.00.

The Ridgeview Sand Company of Oil City, Pa., has been chartered with a capital of \$25,000.00, by Ralph L., Wm. J. and Harry L. Rhoades, Clarence W. Colter, Jean McCunen, Albert Saltzman and S. H. Simpson. The company will send a good part of its product down the Allegheny river into the Pittsburgh district.

John A. Guiler, of Connellsville, Pa., has closed a deal for the Burd farm, near Kingston, Pa., and will open up a sand works on the property at once. The deposit is a very fine quality of molding sand. Mr. Guiler already owns five sand works and is rapidly extending his operations in western Pennsylvania.

NEW YORK SAND AND GRAVEL.

New York, Dec. 15.—There was no gloom this month among dealers in sand and gravel. November proved to be one of the biggest months of the year and prices are up.

"In the month of November we disposed of 3,000 tons of sea sand," said John F. Flannery, of the Atlantic Coast Sand Company, "and this record equals that of any previous month in the history of our business. You see we sell only Rockaway Beach sea sand, which is the finest grade, and sells at \$1 per ton f. o. b. New York, so that 3,000 tons represents good business. Our sand is finding a good demand for all finer kinds of construction work, for sand blast and for cleaning all kinds of machinery, scouring, etc."

J. N. Ely, of the Crescent Sand Company, gave a still more glowing report:

"We have orders for more sand than we can supply," he said. "We are working night and day, and still can't keep up with our business. General building conditions I recognize as being poor, even the cement business, but the demand for sand and gravel has increased because dealers want to get the stuff into store before worse weather ties up things completely. In the face of this strong demand we have advanced the prices 5 and 10 cents, so that sand is now selling at 45 cents and gravel at 85 and 90 cents."

ST. LOUIS SAND AND GRAVEL NEWS.

St. Louis, Dec. 14.—Mr. Homer, manager of the sand and gravel department of the Union Sand & Material Company, states that along back and even up to the present time, they have been obliged to hire a number of extra teams in order to take care of the local demand for sand and gravel. Besides the regular building work, the city of St. Louis, the steam and street railroad companies, and the owners of various new sub-divisions have been improving old roads and building new ones to a greater extent than commonly is the case. The weather also being open and dry, has been unusually favorable for so late a period of the year, and thus admitted of prolonging the season for out-of-town work.

"ROUGHED IT" WHILE BUILDING NEW MILL.

The Massillon Sand & Stone Company, a \$100,000 corporation, is now shipping silica sand from its new plant at Barr's Mills, south of Massillon, O. The plant was built to replace the mill destroyed by fire last December. While the construction was in progress J. W. Urwin, general manager, and his men lived in tents on the company's property, "roughing it." The most modern machinery has been installed.

CHICAGO SAND AND GRAVEL NEWS.

Business is considered brisk with the sand and gravel people, notwithstanding the general shut-down of building operations caused by the cold weather. Collections with the dealers are, as a rule, good, especially so for this time of the year, when Christmas money is so much in demand. Prices are remaining stiff, with an upward tendency, and almost any price can be asked and received.

"Business has been good all the fall," said P. M. Lewis, secretary and treasurer of the American Sand & Gravel Company, 138 Washington street. "Things took a slump the first of the year, but rapidly improved until our business this year figures well in comparison with last year. I can see nothing in the road for a record-breaking business next season. The great number of large buildings, together with much street paving and other public improvements under way, point to a good future. Collections have been improving the past two or three months and are now fairly well up to the average."

J. S. Putney, of the Lake Shore Sand Company, 138 Washington street, reports things pretty well frozen over, but no kick coming, as the slide happens at each cold wave. They see a great outlook for 1911. Things should go on increasing as they have during the past twenty years. Collections are fair with them. They look for much better prices from now on.

R. P. Duffy, of the Richardson Sand Company, 138 Washington street, reported trade good for this time of the season. He said: "Business is brisk with us considering the cold weather we are having and which usually breaks up the trade. There is a good demand for sand and the prices remain stiff. We are having trouble running the plant because of the cold and busy finishing up work started earlier in the season. We find collections very good now, as they have been all the season. Can't say much about the outlook, but don't see any heavy clouds."

WEST COAST SAND AND GRAVEL.

San Francisco, Cal., Dec. 15.—The Golden Gate Brick Company, operating sand pits at Antioch, Cal., furnished a large amount of sand for municipal work in San Francisco during November.

The channel recently dredged from the city of San Rafael, Cal., to deep water is a great aid to the material men. A report on the tonnage handled there shows a steady increase in the amount of sand, gravel and crushed rock delivered by this route.

The Santa Fe Railroad is planning to build up an extensive business in the Fresno district in marketing the gravel and cobble stones from Kings river. It is reported that there is a large demand for material of the size found at that place for concrete construction work.

The American Glass Sand Company has been incorporated at Los Angeles with a capital stock of \$100,000.00 by E. B. de la Matyr, A. W. Ballard, J. J. Lewis, H. C. Brown and B. Gerlach.

The Pioneer Sand & Gravel Company, of Seattle, Wash., has closed a deal for 134 feet of harbor frontage in that city, and will erect there a big wharf and sand bunkers. The location is just north of the Moran shipbuilding plant and is said to have been purchased for \$150,000.00.

WISCONSIN SAND AND GRAVEL.

Milwaukee, Wis., Dec. 20.—From practically nothing, the sand industry in the little city of Berlin, Wis., during the past few years has grown to be one of the leading assets of the town. During the past summer an average of nearly ten carloads were shipped to West Allis, Milwaukee, Chicago and intermediate points. The citizens are proud of this record, considering the fact that they have no modern means of handling the material.

ILLINOIS SAND AND GRAVEL.

Springfield, Ill., Dec. 21.—The Mackinaw Sand & Gravel Company, of Lincoln, has closed the gravel pit at Mackinaw after a record summer.

Lexington, Ill., is surrounded by thirty miles of gravel roads.

Jansen & Zoeller, Pekin, Ill., who were fined for taking sand and gravel from a pit inside the city limits, have appealed the case to the circuit court of Tazewell county.

Riley Wolf, of Alton, has ten teams at work hauling sand from Mississippi river bars to go into storage.

Paving contractors were hard against in getting teams to haul gravel and other material last month and ingenuity was developed. S. A. Tuttle, of Decatur, pressed a traction engine into service and operating between the Bowsher gravel bank, west

of the city, two round trips a day were made with a train of six wagons, each carrying three and one-half yards of material. Horses were at a premium when W. J. Roller was anxious to finish a contract in Newman and had a car of gravel on the track. He hitched an ordinary wagon behind his automobile and made trips, carrying a yard and a half of gravel at a time.

Team work was big in Alton the latter part of November, as the low stage of water in the Mississippi made the sand bars accessible and all dealers stored immense quantities.

Judge Overture, of Columbus, has been appointed receiver of the American Sand Company at Ellis Station, N. Y. The appointment was made by the court of common pleas on application of creditors.

USE THE PEBBLES OF THE SEA.

(Photos by Felix J. Koch.)

Perhaps as interesting a development as any of this utilitarian age of ours is reported by the American consul at St. Johns, Newfoundland, in that there is a trust operating on that, the world's tenth largest island, with monopoly of the pebbles of the beaches. These it is shipping to the United States, which goes to show that our American beaches have either been drained or are likewise to be attacked.

According to the report, the Newfoundland government agrees to grant to the Atlantic Pebble Company for three years from May 1 last the exclusive right to export pebbles and beach-stone from the colony, and also for twenty-five years from the same date the exclusive right to enter upon any crown lands situated inland within a hundred yards of high water mark along the shores of Conception



GATHERING PEBBLES IN NEWFOUNDLAND.

Bay, between Cape St. Francis and Splind Point, to search for pebbles and beach stones, but their sole right of export is restricted to Conception Bay. The company's present operations are at Long Point, near Manuels, fifteen miles from St. Johns.

After three years, exploitation of pebbles for the rest of the island is open to everybody, and only in Conception Bay has the company any exclusive right. During the three years, all machinery which cannot be made in the colony and all sacks and sack-ing imported by the company for use in its operations will be admitted free of duty.

Only a certain kind of pebble is required, and these vary in circumference from three to nine inches and are divided into three grades. They are packed in sacks weighing 168 pounds each when filled. The first cargo of 165 tons, valued at \$13,200.00, was shipped to Philadelphia on July 14th.

The supply of these small stones in the island is considered inexhaustible. The laborers working by contract earn \$1.30 to \$2.00 per day, about 200 men being employed.

The pebbles will be used for concrete buildings, as they are harder than broken rock, and the smaller pebbles of flint will be used for the grinding of tale. It is probable that the flint stone pebbles are to displace those from Europe.

The Tuckahoe Sand & Brick Company has been incorporated at Trenton, N. Y., with a capital stock of \$125,000. The company will deal in sand and gravel. The incorporators are Edward C. Haley, George B. La Barre, Benjamin Godshalk and John R. D. Bower.

The South Jersey Sand Company has been incorporated at Cape May City, N. J., with a capital of \$25,000. The incorporators are Ernest W. Lloyd and Horace E. Richardson. The company will deal in sand, gravel, cement, etc.

SAND AND GRAVEL PRODUCTIONS.

In a report recently issued by the Geological Survey, the value of sand and gravel dug out for sale in the United States in 1909 was more than \$18,000,000.00. In 1908 the value of the product was about \$13,300,000.00, or \$4,700,000.00 less than in 1909. In 1908 the production was 37,216,044 short tons, that of 1909 was 58,027,025 short tons. The exact values of the sand and gravel produced in 1908-09 was \$13,270,032.00 and \$18,040,536.00, respectively.

The more extensive use of sand and gravel in concrete construction work, together with larger quantities used for railroad ballast and filling, was in a large degree responsible for the great increase. The average value of building sand during the year 1909 was 31 cents a short ton, the average value of gravel was 25 cents.

The Ohio Gravel & Sand Company has been incorporated at Columbus, O. The incorporators are C. E. Richards, George H. Bulford, W. D. Brickell, J. E. McCarthy and Carrie H. Richards.

The Burdell Silica Sand Company has been incorporated at Columbus, O. They will take over and operate the former plant of the American Sand Company at Dundee, O. The sand from this pit has been under test for some time and has been found to be a high-class moulding sand. The incorporators of the Burdell Company are Herbert N. Myers, Foster G. Burdell, John F. Bechtel, Ralph N. Harris and John F. Alburn. The capital stock is \$25,000.00.

The Riverview Sand Company has been incorporated at Pittsburgh, Pa., with a capital stock of \$25,000.00. The incorporators were R. L. W. J. and H. L. Rhoads, C. W. Coulter, Jean McCuen, S. H. Simpson and Albert Saltzman.

The Dobbins Gravel & Coal Company has been incorporated at Denver, Colo. The capital stock is \$100,000.00. The incorporators are A. W. Jones and M. R. Dobbins.

The American Glass Sand Company has been incorporated at Los Angeles, Cal., with a capital stock of \$100,000.00. The incorporators are E. B. De La Matyr, A. W. Ballard, J. J. Lewis, H. C. Brown and B. Gerlach.

LOUISVILLE CONCRETE ENGINEERING NEWS.

Louisville, Ky., Dec. 17.—There are plenty of big concrete engineering jobs going on in Louisville at present, and most of them are worth attention. Probably the biggest being handled just now is the new Kentucky & Indiana Bridge Company's piers, which are of concrete masonry. The Foster-Creighton-Gould Company, of Nashville, is handling this big job, which will require 40,000 barrels of cement. J. B. Speed & Co. received the contract for this.

A. Bentley & Sons Co., of Toledo, has completed its work on the Snead Power building, on Market street, and has transferred its activities to the construction of a big reinforced concrete warehouse, which is being erected for the Union Warehouse Company at Seventh street and Magnolia avenue. The Turner system is being used there, it having attracted attention while being developed in the construction of the Snead building.

The American Engineering & Construction Company, of Chicago, has begun work on the big intake crib of the water company, which is to be built in the river at the pumping station of the company. It will be necessary to sink a caisson, and owing to the possibility of a flood stage of the Ohio during the winter the work will be rushed with all possible speed.

H. H. Snyder, of Louisville, is pushing work on the construction of four reinforced concrete bins for the Louisville Cement Company, at Speed's, Ind. The bins will greatly enlarge the storage capacity of the company's plant, and as with the addition of new machinery, which has been ordered for it, it will turn out 2,500 barrels a day, the new space will be needed.

The Belknap Hardware & Manufacturing Company is reported to be figuring on a new ten-story reinforced concrete warehouse building. Its present warehouse, which was erected several years ago, was one of the first reinforced concrete buildings erected in Louisville, and the decision of the company to adopt that form of construction in connection with its next building is a tribute to the efficiency and economy of reinforced concrete construction. Final plans for the new building have not come out, but it is expected that work will be begun early next spring.

FIRE HAZARD IN SCHOOLS ESTIMATED.

(Continued from page 3.)

higher than the price on the reinforced concrete basis. One bid, however, on the brick and wood was about the same as the price on the concrete basis. The board decided in favor of the reinforced concrete building.

Perhaps the best example of what can be done in reinforced concrete was the result of the bidding on Public School No. 11 at Bayonne, N. J., as this building is larger, the comparison would necessarily be better. This building contains twenty-seven class rooms, teachers', principal's rooms, library, and an assembly hall seating 1,000 people. This does not include any of the room in the basement, several of which are used for class purposes.

The lowest bid received on the basis of brick and wood was \$132,700.00. The contract for the construction of the building was awarded on the reinforced concrete basis for \$111,000.00—a saving of \$21,700.00, all bids being without heating and plumbing work.

Recently the Board of Education at Nutley, N. J., visited the Central Avenue School at Madison and after making an exhaustive investigation, comparing the cost of this building with what they had formerly done in brick and wood, adopted the plans of this building and contracts have been awarded to duplicate this school at Nutley.

In the design of a reinforced concrete school building there are many short cuts to economy which are not possible with any other material, and in all the schools above referred to no changes have been made in the various items of finish, trim, painting, lighting, plumbing or heating work to obtain these low prices. In every case of competition the comparison has been fair. The specifications drawn for the original building, so far as they would apply to a fireproof building, have been followed strictly. Only the best grades of materials and workmanship have been used throughout the construction.

One of the first items of saving was found to be the area of ground covered by a concrete building being considerably less than that occupied by one of brick construction, for the reason that the corridor partitions and division partitions between class room, together with vent stacks, etc., were usually built of brick, being in size anywhere from twelve to twenty inches in thickness. As four-inch partitions take their place in concrete construction, a considerable amount of space was gained in this manner. This amounted to 594 square feet on the ground area between the Chatham and the Madison buildings, with all class rooms the same size.

The practice of the writer has been to use a ten-inch thickness for outside concrete walls with a furring of two-inch hollow blocks. This has given very satisfactory results and in no case has there been any discoloration of plastering due to dampness on the interior of the building. This is also largely due to the fact that the exterior of the buildings are treated with a liquid concrete, a number of excellent materials being now available for this purpose.

It was also found in designing school buildings in reinforced concrete a great deal of floor space could be saved, owing to the simplified method of construction, it being possible to disregard the question of supporting walls and by using the column and beam construction to so arrange the beams as to give a pleasing panel effect in the class rooms.

Another item that enters into the cheapening of the building is the fact that it is unnecessary to do the usual plastering on the concrete surfaces. For basement walls and ceilings the work is left practically as it comes from the forms, touching up only such spots as may be found necessary, afterward finishing with cold water paint or liquid concrete.

In the class rooms and other rooms throughout the building the concrete surfaces are finished under a wood float, using Portland cement and fine sand. Where care has been exercised in the construction of the forms and placing of the concrete, this is found sufficient to turn out an excellent finish. The furring of the side walls and partitions are covered with two coats of plastering.

One of the problems which has not yet been satisfactorily solved is the finish of the floors of class rooms. While the use of cement finish for corridors, basements, stairs, coat rooms, toilets, etc., has proven satisfactory after being treated with a liquid concrete to prevent dusting up, the same construction has not been adopted for class rooms, most boards objecting to the children sitting with their feet on the cement.

It has been the practice of the writer to economize in the floor construction by laying one inch of sand upon the top of the finished concrete slabs, placing on this diagonally the form lumber used in the construction of the building, nailing together at the

edges and joints, and placing rosinized building paper and covering with seven-eighths wood flooring, usually of maple or comb-grained yellow pine.

As the use of wood floor carries with it the use of wooden base, this is not an ideal finish for a school room, and the writer is now endeavoring to have adopted in some future school work cork carpet laid directly on the concrete slabs. This makes it possible to use a cement base with sanitary cove around all walls, also the added advantage of a noiseless and warm floor, and from estimates made floor covering of this kind can be installed at about the same cost as the present method of wood finish.

As the pupils bring in more or less dirt on their feet, a greater portion of which is left on the stairs, keeping the stairs clean becomes an important matter. The former method of applying safety treads to the top of the treads with grooves between the rows of lead has been supplanted by the use of a sanitary tread, designed by the writer, and which is set into the cement at the time the tread is finished, providing a surface level on top and permitting the stairs to be easily cleaned.

The present practice is to use wooden windows and doors in school buildings, and as those made of sheet metal are too expensive and steel sash have not proven sufficiently tight against drafts to warrant their use for this type of building, the writer is working on designs for hollow steel sash and hollow steel doors, which it is expected can be supplied at about the same price as is now paid for these in wood. In the use of steel windows and doors, trim around the same will be entirely eliminated, thus doing away with all places where dust is liable to accumulate, and at the same time providing an absolutely fireproof construction. The blackboards also would be set in metal frames.



LINCOLN SCHOOL, SUMMIT, N. J. H. P. A. MONTGOMERY, ARCHITECT.

The installation of a vacuum system of cleaning, for removing dust from the school building, is not an expensive item, costing about \$50.00 per class room, and should be part of the equipment in all school buildings. The pipes can be connected to the chalk troughs under the blackboards for the removal of all chalk dust. Where electric current is not supplied to a building, the system can be successfully operated by water motors.

The proper heating and ventilating of a school building is perhaps one of the most important items in the construction. A number of systems have been devised and recommended for this class of work. The use of hot-air heating with mechanical ventilation is still found to be satisfactory, though some boards prefer the use of steam or hot water under thermostatic control.

During the cold weather of January, 1910, every school house in Irvington and Summit, N. J., with the exception of School No. 5 and the Lincoln School, were closed for a certain length of time on account of the inability of the heating systems to make the rooms comfortable. In these two buildings, built of reinforced concrete, sessions were held for the full day with all the pupils as comfortable as usual.

This demonstrates in a practical manner that concrete buildings, being more dense than those of brick, are more easily heated.

In architectural appearance buildings of reinforced concrete can be made more beautiful than by the use of any other material within anything like the same cost. The architect in handling this material can readily obtain at very low cost good and expressive details, but the imitation of brick and stonework should not be considered, as the

joints used in brick and stonework are more or less a part of the design, which in concrete, of course, do not exist. The concrete, being of one color, makes it necessary to design building in mass rather than color.

The use of decorative tile and tapestry brick can be very successfully employed for ornamentation, though a too liberal use of the same is not to be recommended.

There is no material, perhaps, which adapts itself so readily to rapid construction as reinforced concrete. In many cases when used for suburban school construction the entire amount of material such as sand and gravel can be found at the site of the building, making a still further reduction in the cost.

There is no waiting for materials in reinforced concrete work when properly handled. Good reinforcing bars are on the market and readily obtainable from stock. Broken stone, gravel and sand can usually be delivered to the building site within a day or two after the signing of the contract, and there is no delay for iron lintels, stone or terracotta trimmings, thus permitting the building to be pushed to a rapid completion.

With the improvement in the construction of reinforced concrete buildings, the wheelbarrow is being eliminated to be replaced by the small buggy or cart. This in turn is being replaced by spouting systems, and it is the expectation of the writer before long to see concrete successfully installed by means of pumps.

One of the features which perhaps has received more study than any other part in the construction of a reinforced concrete building has been the forms. Many steel forms have been made and used with more or less success, but until school buildings can be standardized and the forms made to reproduce

moldings and architectural features, and where the forms can be used over and over again, this method will hardly prove successful. It is a problem, however, worthy of the best engineering talent, and it is hoped will be successfully solved within the near future.

The unit cost of a reinforced concrete school building varies somewhat with the size and arrangement, and according to the relative amount of floor space actually occupied by the class room. This varies from twenty to forty per cent, all floors considered.

The price per cubic foot will vary from 17 to 20 cents, while the cost per square foot, all floors considered, will vary from \$2.00 to \$3.00, and per class room from \$4,000.00 to \$6,000.00, decreasing as the building increases in size.

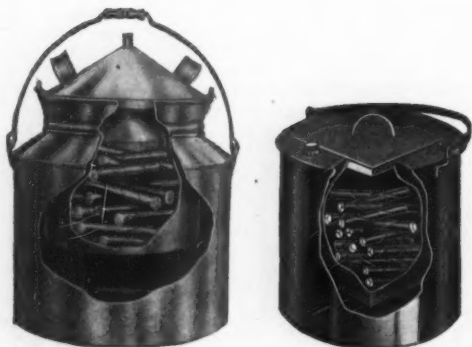
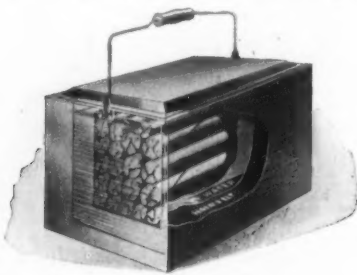
It is difficult and unsafe to estimate buildings by unit prices. For instance, the Chatham School, a brick and wood building of the same number of class rooms as the Central Avenue School at Madison, shows the same price per cubic foot, with the price per square foot less for the brick building than for the concrete building, but with price per class room the same for the both buildings. This was largely due, as before mentioned, on account of the economy in the floor space of the concrete over the brick building.

In the case referred to the brick and wood building actually costs the same as the one of reinforced concrete. From the price per cubic foot there would seem to be no difference, and from the price per square foot the cost would be in favor of the brick building. While unit prices are interesting to the contractor as comparisons, they are very unsatisfactory as a basis for estimating.

Side Talk

THAWING DYNAMITE.

About this time every year, as cold weather approaches, the users of explosives are again confronted with the problem of the safe thawing of dynamite throughout the winter months. Nearly every user of this explosive recognizes the danger of the crude and improper methods to a large extent



now employed, such as toasting before a fire, frying on a boiler or roasting in an oven. But besides the danger incurred in employing these methods, there is a loss from the thawing, even though the danger is eliminated, which is hardly possible in these customary methods now employed.

As an instance of this, it is fairly safe to plunge a lot of powder into tepid water, provided the nitroglycerin which leaks out is taken care of so that it does not explode at some unexpected, inopportune time, but the loss in efficiency of the dynamite in a work where any considerable quantity of the explosive is used would pay for an efficient thawing apparatus many times over.

The E. I. du Pont de Nemours Powder Company has designed several types of kettles for thawing dynamite; the illustration shown herewith gives an idea of the construction of these kettles. They are designed for thawing small quantities of dynamite, these containing respectively about 60 lbs., 30 lbs. and 10 lbs. With a paper and pencil the loss of efficiency can readily be figured out by any one, say when 40 per cent dynamite is soaked in water. After being thawed out in this manner it will do the work of 30 per cent dynamite. In addition to the loss the hazard of having a quantity of free nitroglycerin about is very great. These thawing kettles do away with both danger and loss and are instrumental in thawing dynamite in a quick, sure and safe manner.

Any further information can be had from the officer of the Du Pont Powder Company at Wilmington, Delaware.

THE SMITH MIXERS.

The T. L. Smith Company, of Milwaukee, Wis., have issued three catalogs—The Smith Glass Mixer, The Smith Fertilizer Mixer and The Smith Hand Mixer. These catalogs are well illustrated with cuts of the different mixers and contain a description of the mixers and the help they would be to anyone using same for their respective purposes. They also give views of these mixers installed in prominent plants all over the country.

The Turner Construction Company, consulting engineers and contractors, have sent out their quarterly bulletin, No. 9, dealing with reinforced concrete construction and engineering. The bulletin is printed on heavy glazed paper and is profusely illustrated with views of factories and office buildings built by reinforced concrete. The book deals especially with the methods of attaching, shafting, piping, etc., to concrete. It can be had upon application to the office of the Turner Construction Company, 11 Broadway, New York, N. Y.

The Lehigh Portland Cement Company has recently issued a bulletin of fifteen pages, in which are photographs and descriptions of some of the most important projects built in which Lehigh Portland cement was used. Among these constructions are: The sea wall and boulevard, Galveston, Tex.; the new Asylum Avenue Viaduct at Knoxville, Tenn., and the plant of the Union Clay Manufacturing Company, Empire, Ohio. The booklet shows several views of each project.

A NEW INDUSTRY.

We were recently attracted by the claims of a company in Milwaukee that marble can be manufactured. From what we can see they bear out their statements. Now this marble has merit, and only differs from the quarried product in so far that it is made in a factory. It was found to duplicate all the features of real marble of like color and grade, such as crystallization, transparency, hardness, etc. Water veins in the natural were shown to be fractures, while this marble product eliminates any fractures or defects in the surface. We understand it that in real marble the source of its beauty is the cause of its weakness.

By the utilization of specially designed machinery and a knowledge of chemistry they have combined the factors that make their product a real marble, and their knowledge of the ingredients contained in the quarried marbles undoubtedly lead them on until such combinations were perfected to produce a real marble artificially in place of being nature's handiwork.

This reconstructed marble met with success only after two years of effort. At first it was met with skepticism, but as soon as it was put to trial on a job it won favor and overcame all objections, with the possible exception that sentiment still exists in favor of the genuine article, and with this one exception they have a great many advantages in their favor. As marble is a limestone wholly crystalline in its character and accepts of a polish to distinguish it as a marble from that of other rock products, their claims for their product under this same definition certainly entitles them to some recognition.

CEMENT COATING.

The Heath & Milligan Mfg. Company, 170-172 Randolph Street, Chicago, make the following announcement to the trade:

Dear Sir: We are pleased to advise you that after many years of experiment and practical tests made in our laboratory, testing department and in field tests, we have perfected a cement coating which we are convinced is the ideal finish for cement, concrete, brick, stone and stucco.

E. J. Morse, who for some years has been connected with the F. J. Morse Company, has been placed in charge of our cement coating department. We can assure you that with Mr. Morse in charge of this department, we will work with you as closely as possible to produce the very best practicable finish for the especial work you have before you.

Should you at any time desire the co-operation of our laboratory and testing departments, we will be very glad to consult with you.

We hope that you will favor us with a continuance of your patronage and will be glad to have you consult with us direct at our cement coating headquarters, No. 207 Chamber of Commerce Bldg., Chicago.

Yours very truly,
HEATH & MILLIGAN MFG. CO.,
A. C. Rockwell, Sales Manager.

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Advertisements will be inserted in this section at the following rates:

For one insertion.....25 cents a line
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Eight words of ordinary length make one line.
Headings counts as two lines.
No display except the headings can be admitted.
Remittances should accompany the order. No extra charges for copy of paper containing the advertisement.

EMPLOYEES WANTED

WANTED.

If you are in need of or wish to sell anything which comes under any of these classifications, write us. If you have something not coming under these classifications we will create one for you.

PLANT MANAGER.

A General Plant Manager in the East with experience and ability, familiar with Portland cement and lime manufacture. To the right man a fixed position with salary of about \$5,000 per year. Answer giving full particulars as to age, past and present employment, actual experience, etc., and references. Only applications from the most experienced and competent will be considered. Address Box 792, care ROCK PRODUCTS.

DRILLMAN.

Wanted—First-class Drill Man who understands the use of Ingersoll's Air Drills and can drill in hard trap rock. Also who has had experience in both drilling and blasting. Give reference, state experience and salary wanted. Address
BIG ROCK STONE & CONSTRUCTION CO.,
Little Rock, Ark.

Wanted Quarry Foreman

For Modern Crushing Plant

Write Giving Experience, References and Salary Expected.

Box 791 Rock Products

EMPLOYMENT WANTED

FIFTEEN YEARS' EXPERIENCE.

Harry Blum, general manager of the late People's Builders' Supply Co., open for position. Thorough knowledge of all materials. Fifteen years' experience. Age 32. Will make good in any capacity or resign.
1828 Wakeman St., Toledo, Ohio.

TRAVELING SALESMAN.

Traveling salesman, experienced in building material lines, principally lime and cement, wide and favorable acquaintance with the trade in Ohio, New York and Pennsylvania. Have highest references and recommendations. Want to make change about the first of the year. Address 789, care ROCK PRODUCTS.

POSITION AS SUPERINTENDENT

Wanted; or assistant of lime plant. Had charge of plant with Kritzer hydrating, pulverizing and coopeage plants. Forced draft kilns. Proven ability in obtaining minimum production costs. Strictly sober and untiring energy. Best references. Address "X," care ROCK PRODUCTS.

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Cement salesman of ten years' experience open for position January 1st, 1911. Address Box 799, care ROCK PRODUCTS.

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Wanted—Position by experienced salesman. Wall plaster and plaster board. Open for engagement January 1st. Address "XR," care ROCK PRODUCTS.

MACHINERY WANTED

GYRATORY AND ELEVATOR.

Wanted—No. 7½ gyratory and elevator.
ELLSWORTH STONE CO., Iowa Falls, Iowa.

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GOOD AS NEW.

One Butterworth & Lowe Crusher.
One No. 1 Sturtevant Rotary Crusher.
One No. 2 Sturtevant Rotary Crusher.
Two 32" Sturtevant Rock Emery Mills.
One size "O" Jeffrey Vibrating Screen.
One size No. 1 Jeffrey Vibrating Screen.
Two size No. 2 Jeffrey Vibrating Screen.
One Steel Bucket Elevator.
The above mill supplies are in good shape, and can be seen in operation until Jan. 1st. For particulars and quotations address
C. E. HOLDEN, Toledo, Ohio.

FOR SALE CHEAP

Two new No. 66 Lindhart Kominuters; five No. 7 Schmidt Ball Mills; one No. 64 Lindhart Kominuter. No. 7 mills and No. 64 first-class condition. Address

COPLAY CEMENT MFG. CO.

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For Sale—A complete crusher outfit, used three months, good as new. Will sell for one-half of original cost. Big bargain. Address
HOBBS-NEWBY EQUIPMENT CO., INC., Norfolk Va.

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For Sale—No. 3, overhauled, first class shape. Also narrow and standard gauge locomotives. Address Southern Iron & Equipment Co., Atlanta, Ga.

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An unlimited amount of the very finest of cement material covering nearly 100 acres within 75 miles of St. Paul and Minneapolis and Duluth and Superior; the only deposit of the kind in the states of Wisconsin or Minnesota and on the main line of the Soo railroad and located in such a manner that all of the material can be handled by gravity from the quarry into the cars. An opportunity that is well worth looking into and one that can be secured cheaply. Address S. J. Wall, St. Croix Falls, Wis.

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You can secure gypsum of high grade for reasonable price. Deposit is located to insure low freight rates to largest markets. Supply unlimited. Will sell property outright, or allow it to be worked on a royalty basis. Correspond with

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Consulting, Mechanical and Chemical Engineer, in Designing, Construction and Operation of Plaster Mills, (Kettle or Rotary Process), Elevating, Conveying and Crushing, Mechanical Drying, (Kiln or Rotary) and Hydrating Plants, Power Houses, Pumping Stations and Water Powers.
Examination, Tests, Analysis and Reports. Plans, Specifications and Superintendence of Construction.

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YOUNGSTOWN, OHIO.

Will Retain Equity in Stock

Sweetwater Lime & Stone Co. own the only lime kilns situated in the center of a territory 200 miles square on three trunk lines of railroad. Distributing our products in every direction, also No. 4 Austin gyratory stone crushing plant at quarry, daily capacity, stone 160 cu. yards, 150 bbls. white lime. Unlimited amount of available stone. Both plants new. Only operated three months. Want additional capital. For sale, or will incorporate and retain equity in stock of corporation or guarantee to handle one-half of capital stock. Desire the services of a competent manager. Analysis of lime and samples of stone submitted upon request. Address R. Severn, Sweetwater, Texas.

JAS. B. MACNEAL & CO. Baltimore, Md. CALVERT MORTAR COLORS Prices and samples on request

Attention, Quarrymen!

For sale—No. 8 Austin Gyratory Crusher. No. 6 and No. 3 Austin complete plant. No. 3 Austin and 2 No. 6 Gates and No. 5 "B." 70-ton Vulcan Steam Shovel, 2-yard. 50-ton Bucyrus Steam Shovel, 1 1/4-yard. Loco. Crane, with 1 1/4-yard Clam Shell. Little Giant Traction Steam Shovel, 1 1/4 yard. Hayward Orange Peel Buckets, 1 and 1 1/4-yard. Stiff Leg Derrick with 18"x18" mast and boom, 18"x18"x68 feet, complete with extra heavy American irons rigged for 3-part line. Concrete Mixers, Concrete Buckets, Steam Rollers, Air and Steam Drills, Air Compressors, Pumps, Boilers, Locomotives, Dump Cars, etc. Several Thew No. 0 Traction Shovels. Full line of Air Compressors. Quarry Steam Hoists, all sizes. All our goods we fully guarantee.

Send for our November Booklet.

Willis Shaw Machinery Co.
171 La Salle St., Chicago, Ill.

CRUSHING PLANT FOR SALE

1 set of 42" x 14" rolls, weight about 26,300 lbs. 2 single unit centripact screens, weight 2,200 lbs. each 5 pulley feeders, weight 400 lbs. each.

(This equipment is practically new, having been in actual service not more than six hours).

If interested, address

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CLEVELAND, OHIO

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EAGLE POINT LIME WORKS, Dubuque, Iowa, writes:

UNIVERSAL CRUSHER CO., Cedar Rapids, Ia.

Nov. 25th, 1910

Dear Sir: Yours of the 24th at hand. We installed a No. 2 Velten Universal Crusher as an auxiliary this year, and must say the Crusher has exceeded our expectations. It handles the rejections from a No. 5 GYRATORY with ease and do not know where we could have purchased a better Crusher for our purpose.

Yours truly,

P. S. You may use this letter as reference

EAGLE POINT LIME WORKS, per L. M. Fingles, Sec.

Now you save Money, Trouble and Time. Write us for information and prices and we will promptly reply. Address

Sales Office
508 F Ave. West

UNIVERSAL CRUSHER COMPANY

CEDAR RAPIDS, IOWA

WE MANUFACTURE ELEVATORS, SCREENS, CONVEYORS—ANY STYLE AT REDUCED PRICES.

Telephone
2198

J. T. BROCK, Cement Contractor, Selon, Iowa, writes:

UNIVERSAL CRUSHER CO., Cedar Rapids, Iowa.

November 19th, 1910.

Gentlemen:—In March, 1910, I bought from your E. A. Velde a Velten Universal No. 3 Pattern 1910, and I can state it is a GOOD MACHINE. It has done all and a good deal more than I expected. I have not spent one cent for repairs, and after my season's work it is in as good condition as the day I started. It crushed the hardest rock with ease to any size down to 1/2 inch ring. It has a great capacity by a small amount of power. I am the man for good machines and the Velten Universal is my kind. You can use this for reference. It is the truth.

Yours truly,

J. T. BROCK

CLINTON METALLIC PAINT CO. CLINTON, N. Y.

LARGEST AND OLDEST MANUFACTURERS OF

BRICK AND MORTAR COLORING

Be sure you get the genuine with the "Little Yellow Side-Label" on each package.

Let us tell you about Side-Walk Black.

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General Offices, Byrd Bldg., Memphis, Tenn.

Our Quarry Facilities are of the Best.

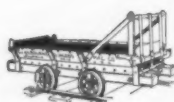
We build municipal street work, turnpikes and give attention to all construction work of a similar character. Our organization is backed by twenty-five years experience, and we are in a position to furnish specifications and estimates promptly. Individuals, Corporations or Municipal authorities are invited to correspond with us.

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LANCASTER, PENNA.

ROCK CRUSHING MACHINERY
BRICK-MAKING MACHINERY
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CEMENT BRICK MACHINERY
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SAND DRYERS, BRICK DRYERS, ETC.

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The above car carries 3½ tons of stone; cubic capacity 42 ft.; gauge track 36 in. We build cars to any specifications to fit your work. Catalog 60-J.

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1 No. 5 Austin, with 60' elevator and rotary screen and power plant. Will sell all or split.
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1 No. 7½ Austin plant complete.
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Two 75-ton steam shovels, built especially for handling broken stone. Used less than one year; left the shop late in 1907. Great bargains for anybody who wants loading shovels.
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Be sure and write us for prices before you buy ANY KIND OF EQUIPMENT—SAVE YOU MONEY

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971 Old Colony Building,

CHICAGO, ILLINOIS

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West Jersey Bag Co., The

BALL MILLS.

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Power & Mining Mch. Co.

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Chicago Belting Co.
Gandy Belting Co.
Main Belting Co.
Salisbury & Co., W. H.
Sawyer Belting Co.
Stephens-Adamson Mfg. Co.

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BRICK.

Harblson-Walker Refractories Co.

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Sackett Screen & Chute Co., H. B.

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U. S. Kellastone Co.

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Atlas Portland Cement Co.
Atlantic and Gulf Portland Cement Co.
Carolina Portland Cement Co.
Chicago Portland Cement Co.
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Dexter Portland Cement Co.
Edison Portland Cement Co.
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Kansas City Portland Cement Co.
Kirkpatrick Sand & Cement Co.
Ironport Portland Cement Co.
Kosmos Portland Cement Co.
Lehigh Portland Cement Co.
Marquette Cement Mfg. Co.
Mecham & Wright Co.
Maryland Portland Cement Co.
Northwestern States Portland Cement Co.
Phoenix Portland Cement Co.
Security Cement & Lime Co.
Southwestern States Portland Cement Co.
Standard Portland Cement Co.
Superior Portland Cement Co.
Union Sand & Material Co.
Universal Portland Cement Co.
Wisconsin Lime & Cement Co.
Wolverine Portland Cement Co.

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Concrete Stone & Sand Co.
Marsh Co.
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Taylor Iron & Steel Co.
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Worrell, S. E.

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American Clay Machinery Co.

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Marblehead Lime Co.
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Raymond Bros. Co., The.
Sturtevant Mill Co.
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McCormick Waterproof Portland Cement Co.
U. S. Kellastone Co.
Wadsworth, Howland & Co., Inc.
Wisconsin Lime & Cement Co.

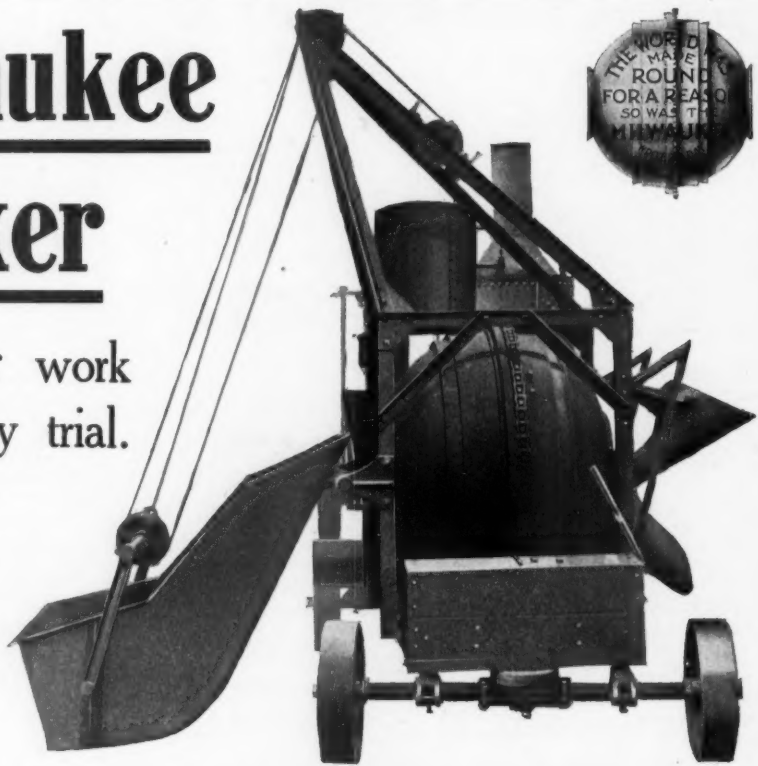


ROSEBERY Explaining the Merits of the "Milwaukee" at the New York Cement Show

Milwaukee Mixer

put on your work for a five-day trial.

Don't fail to get our proposition. Mixer will be operated continually, during show, mixing concrete.



Milwaukee Concrete Mixer and Machinery Company
MILWAUKEE, WIS.

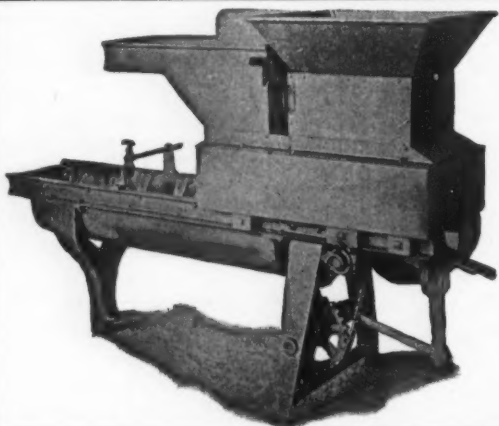
IMPORTANT

Advertisers—Take Notice

Changes of Copy must be in this office by the Fifteenth of the month, if proofs are desired; if no proofs are required the desired changes can be made if copy is received by noon of the Nineteenth.

New Advertisements to insure proper classification, should be in this office by the Fifteenth of the month, but they can be inserted in the last form going to press if received by the Nineteenth. The punctual publication of the paper admits no deviation from these rules. Advertisers are earnestly requested to co-operate with us.

THE FRANCIS PUBLISHING CO., 355 Dearborn Street
CHICAGO, ILLINOIS



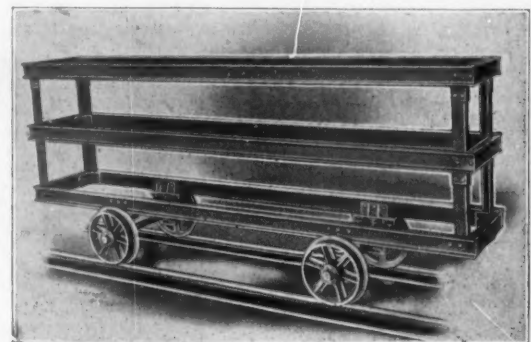
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"The Mixer that measures and Mixes"

"You fill the Hopper, the Mixer does the rest"

Simple, reliable, economical, durable and moderate in price

Write for Catalogue and Prices to
The Kent Machine Co.
306 N. Water St., Kent, O.



The "KENT" Block Cars, Transfer Cars, etc.

Tell 'em you saw it in ROCK PRODUCTS



Headquarters
for Cement Users, Manufacturers, Builder Supply Men and all attendants at the **CEMENT SHOW** which will open February 17, 1911

AUDITORIUM HOTEL Congress Street and Michigan Avenue **CHICAGO**

The National Builders' Supply Association Delegates and ROCK PRODUCTS headquarters will be as usual at the Auditorium. Rates per day from \$1.50 to \$2.50 without bath and \$2.50 to \$5.00 with bath, single person. We have splendid cuisine and make

it our special business to give the best attention to visitors in attendance at these annual meetings.

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Now**

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W. F. SHAFER,
Auditorium Hotel,
Chicago, Illinois.

ALL THE LATEST BOOKS
BEARING ON THE TRADE
AT REASONABLE PRICES

SEE LIST ON PAGE EIGHTY

Structural Tiles

In All Useful Sizes for Every Kind of Building

Large Stock Ready for Prompt Shipment

FOR DWELLINGS—These tiles combine the long needed essentials of perfect adaptability to every kind of decorative treatment, very high fire resisting value, and extreme low cost as well as economy at the job. With them a permanently sanitary home is built—this cannot be done with any other material.

COUNTRY ESTATES AND FARM BUILDINGS—Economical improvements that show up for every dollar of the cost is obtainable only with this greatest concrete product.

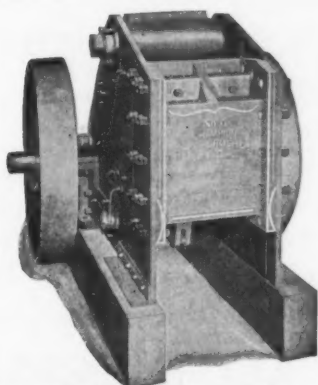
PLASTERED EXTERIORS—A Perfect Plastering surface is provided in concrete tile walls for the spreading of plaster or stucco with absolute certainty of securing strong adhesion of the materials.

Contractors who use our tiles easily underbid competition.

 Orders booking now for 1911 delivery—Investigate.

Chicago Structural Tile Co.

353 Dearborn St. CHICAGO, ILL.



No 5 Champion Steel Rock Crusher, 11x26 in. Opening.

Speaking of ROCK CRUSHERS

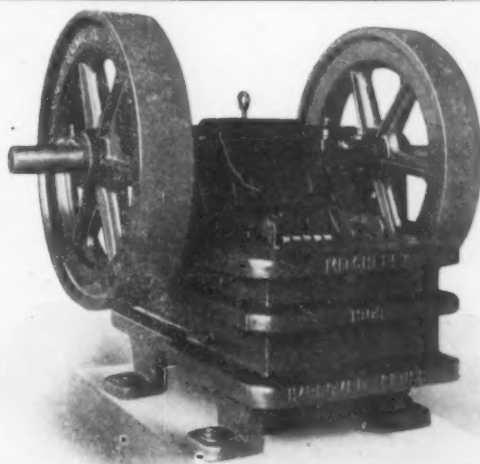
there are over 3,000 Champion Machines in use. Every machine is speaking for us by the good work it is doing.

Champion Crushers are made of steel. They work well and last well. We offer them as the best and most economical crushers made.

Five different sizes, from 75 to 300 tons daily capacity. Elevators, screens, conveyors, engines, boilers. Complete plants installed.

HANDSOME CATALOGUE FREE ON APPLICATION

The Good Roads Machinery Co.
KENNETT SQUARE, PA.



Can You Use ½-Inch Rock?

There is a growing demand among contractors and road builders for rock in ½ inch sizes.

THE MITCHELL IMPROVED CRUSHER

Is the only machine which will reduce rock as it comes from the quarry to pass a ½ inch ring in one crushing. It crushes over 80% uniform. It saves 25% in operating cost. It's so simple that no mechanic is required to run it.

We also make sizes which will crush 4 inch rock to sand in one operation. Ask about our all steel Eureka Crusher.

May we send you our new catalog 6R just off the press?

EUREKA STONE & ORE CRUSHER CO.
CEDAR RAPIDS, IOWA.

FARREL ORE AND ROCK CRUSHER

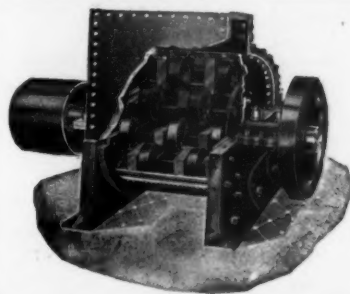
USED IN ALL PARTS OF THE WORLD—LARGE RECEIVING CAPACITY—SPECIALLY DESIGNED AND CONSTRUCTED FOR HARDEST KIND OF WORK
COMPLETE CRUSHING PLANTS OUR SPECIALTY

• SEND FOR CATALOGUE •

EARLE C. BACON, ENGINEER.

FARREL FOUNDRY & MACHINE CO. HAVEMEYER BUILDING, NEW YORK

The Pulverizer

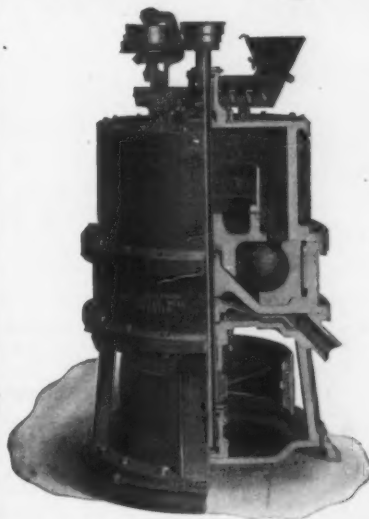


That is Guaranteed to do Your Work

Write for Particulars

American Pulverizer Co.
410 Jaccard Bldg.
St. Louis, Mo.

The Fuller-Lehigh Pulverizer Mill



Cement Companies equipped with Fuller Mills advertise the fact that the consumer gets 38 pounds more of the IMPALPABLE POWDER or REAL CEMENT in every barrel of cement produced by The Fuller Mill than by any other

Produces Commercially

Cement having a higher percentage of Impalpable Powder than can be obtained by any other mill. Tests show that the tensile strength of a 1-5 mortar made with cement pulverized by the Fuller Mill is higher than the tensile strength of a 1-3 mortar made with cement pulverized to the fineness required by the Standard Specifications.

Lehigh Car, Wheel & Axle Works

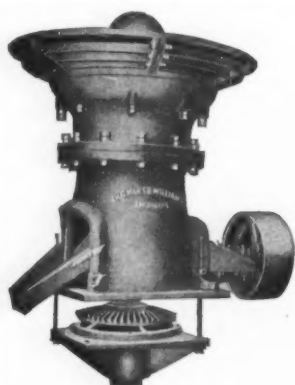
Main Office CATASAUQUA, PA.

New York, N. Y.

Denver, Colorado

Hamburg, Germany, Alsterdamm 7

Tell 'em you saw it in ROCK PRODUCTS



The Kennedy Gyratory Crusher

THE ONLY CRUSHER

With a Ball and Socket Self-Aligning Eccentric

This crusher is proving its superiority over all other makes of crushers in all parts of the country. We can give interesting data from operators, regarding the greater capacity, small cost for repairs, perfect alignment, great reduction in power to operate and perfect coolness of the eccentric.

We also Build Cement Making Machinery

Kilns, Dryers, Coolers, Crushing Rolls, Ball Mills, Tube Mills, Elevators, Conveyors and Revolving Screens.

CHALMERS & WILLIAMS, Inc., : CHICAGO HEIGHTS, ILL.



HOWELLS' Celebrated Ball Bearing Heavy Geared Post Drills

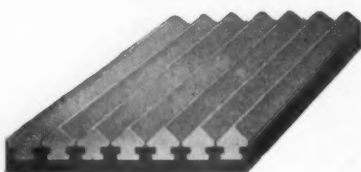
For boring anything that
an Auger will penetrate.

Awarded Gold Medal, St. Louis.

We make 40 different styles machines run by Hand, Compressed Air and Electricity for boring Fire Clay, Coal, Rock, Rock Salt, Gypsum and Plaster Rock. Send today for our handsomely Illustrated Catalogue.

HOWELLS MINING DRILL CO., PLYMOUTH, PA. U. S. A.
(ESTABLISHED 1878.)

A Tempered Steel Jaw Plate for Blake Type Crushers



Canda Tempered Steel Crusher Jaw Plate

Patented March 31, 1908

CHROME STEEL WORKS

CHROME, N. J. U. S. A.
(FORMERLY OF BROOKLYN, N. Y.)

☞ The Canda Tempered Steel Jaw Plate for Blake Crushers is composed of Forged and Rolled Chrome Steel Bars, cast-welded and also mechanically interlocked into a backing of tough steel—and the wearing face is tempered to extreme hardness. We are equipped to supply both corrugated and smooth face plates for all sizes and makes of Blake Crushers.

☞ The Canda method of cast-welding forged and tempered steel bars into a mild and tough Steel Backing, is adapted also to the construction of Cone Heads for Gyratory Crushers, Segments for Corrugated Rolls, etc., etc.

☞ Our products in this line are sold with our special guarantee that they *will wear longer, give better satisfaction and, at our price, prove more economical than any others now on the market.*

— Send for Descriptive Pamphlet —

Represented by

J. F. Spellman, 202 Century Building, Denver, Colo.

George T. Bond, Easton, Pa.

George W. Myers, San Francisco, Cal.



AUSTIN GYRATORY CRUSHER

The World's leading rock and ore breaker.

The only self lubricating Crusher.

The only Crusher having double countershaft bearing.

Simple construction, correct design.

Thousands in use.

Plans and specifications furnished for any sized plant.

Send for Catalogue No. 17.

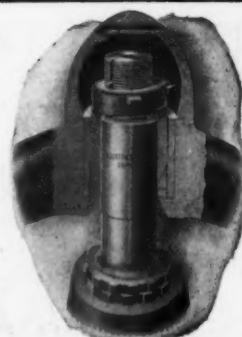
All experienced users recognize that the efficiency and durability of the suspension bearing as applied to Gyratory Crushers, depends upon locating the bearing at the point of least gyration or movement of the main shaft.

A perfect suspension can be made only by locating the bearing at the point where there is no movement of the shaft. That being a mechanical impossibility it follows that superiority is obtained in fixing the bearing at the point of least gyration of the shaft.

As the accompanying cut will show, the movement of the shaft at the point of suspension in the Austin Crusher is reduced to the minimum and practically eliminated. Consequently the highest possible degree of efficiency and durability is obtained.

Austin Manufacturing Co., Chicago

Mussens Ltd., Montreal, Can., Canadian Sales Agents.



New York City Office
1682 FULTON BUILDING
Hudson Terminal

Tell 'em you saw it in ROCK PRODUCTS

The Stattler Stone Company

CRUSHED STONE GROUND LIMESTONE FURNACE FLUX
RUBBLE, BUILDING AND CUT STONE

PIQUA, OHIO.
August 16/1910.

Smith Co.,
6 A. W. Pittsimmens, Sales Mgr.
Milwaukee, Wis.

In reply to your favor of the 19th would
we appreciate an opportunity to express our
to the #1 1/2 Symon's Gyration Crusher, which
in our new plant along in January of 1909.

This machine has been in constant use
first started at an expense for repairs
nothing. It will take in a piece of rock
a large as the old-fashioned Gyration ma-
ted capacity. The method of lubricati-
able and dust-proof. A practical quar-
and the advantage obtained by feeding
and yet this work is accomplished with
power than is required in the one-
ry Crushers.

We were greatly pleased to note
et for six Symon's Crushers in
crete material for the improve-
think of no reason why the Sym-
ake its place where it does
er Manufacturing trade.

Yours truly,
THE STATTLER STONE
Per *[Signature]*

THE HOKE COMPANY (INCORPORATED) GENERAL CONTRACTORS, LOUISVILLE, KY.

Sept 3-10

Mr. A. W. Fitzsimmons
Sales Mgr. T. L. Smith Co.

Dear Sir:
It affords me pleasure to say our
#5 Symon's Crusher has and is giving us
satisfactory results. We have just completed a lot
of crushing 9000 Cub Yds. of the hardest lime-
stone in Jefferson Co. Ky, in average
160 Cub Yds. 1 1/2 Stone per day, without an hour
delay caused by the Crusher.
I have run two other styles Gyration Crushers
also Jaw machines none of which ever
gave better results.

Yours Truly
H. H. Robbins

Kashville Railway and Light Company
KASHVILLE, TENN.
August 20th, 1910.

Mr. A. W. Fitzsimmons,
c/o T. L. Smith Company
Milwaukee, Wis.

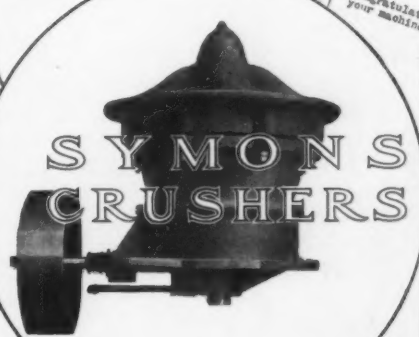
Dear Sir:-
Yours of the 19th inst., to hand. will say that we
have no reason to regret the adoption of the Symon's crushers, and
are thoroughly satisfied with our plant, and should we ever see fit
to increase our crusher capacity would install the Symon's machine.
Our rock crushing plant is giving entire satisfaction and so far
are in favor of and prefer your crushers.

Truly yours,
H. E. Bueh
Roadmaster.

The United States Portland Cement Company

Concrete, Sept. 21, 1910.
T. L. Smith & Co.
Milwaukee, Wis.
Gentlemen:
Answering your communication of Aug. 20th
relative to the performance of the No. 6 Symon's
Crusher, recently purchased from you, will say
that we have had the same in use for about
three months, with excellent results. The per-
centage of this crusher was determined by the ex-
cellent performance of the No. 5 Symon's crusher
that we have had in use for approximately the
same period of time.

Very truly yours,
THE UNITED STATES PORTLAND CEMENT CO.



SYMON'S CRUSHERS

DITTLINGER LIME CO. MANUFACTURERS OF SNOW DRIFT HYDRATED LIME CRUSHED STONE IN ALL SIZES



New Braunfels, Texas.
Aug. 27th, 1910.

The T. L. Smith Company,
Gentlemen:
Milwaukee, Wis.

It affords us pleasure to answer your let-
ter of the 19th inst. wherein you ask us to give you
an honest expression on the No. 5 Symon's Gyration Crusher
that we purchased of you some time ago.

When the writer referred your letter to our
Supt. for his opinion he was told to write you, and we
here repeat his own words.

"You just simply can't say too much in
praise of this machine for it has given us the very
best satisfaction and service from the minute we put
it to work."

The above is our endorsement of the No.
5 Symon's in a nut shell. The machine has been running
smooth and nice with the minimum of trouble and so far
we have had no breakage whatever.

As you know recently we increased our capa-
city by the addition of a Symon's 1200 Crusher, and for
the present do not contemplate any further improve-
ment but whenever we decide to put in another crusher
we will be a Symon's Gyration.

Thanking you kindly
for your letter of the 19th inst. and for
congratulating you on the
your machines, we are,

THE PORTAGE SILICA CO. SILICA SAND AND GRAVEL

YOUNGSTOWN, OHIO. Aug. 23, 1910.

The T. L. Smith Co.,
Milwaukee, Wis.

Gentlemen:
The No. 7 1/2 Symon's crusher, which you furnished us
the past spring, has proven entirely satisfactory. It has
done all the work that we have asked it to do, and is not
nearly up to capacity. We have not put through it more
than 75 tons per hour at any time, but have no doubt, what-
ever, that we could, at least, double this amount and very
probably exceed it.

Yours very truly,
THE PORTAGE SILICA CO.
Per *[Signature]*
Gen. Mgr.

ANDREWS HYDRAULIC CONSTRUCTION COMPANY ENGINEERS & CONSTRUCTORS

CONCRETE, STEEL, DAMS, ELEVATORS, PUMPS, WHEEL, SETTING,
POWER, HOISTS AND REVERSING, HYDRAULIC CONSTRUCTION
NEW YORK OFFICE: CITY INVESTING BUILDING, 125-7 BROADWAY
HOME OFFICE: 176 FEDERAL STREET, BOSTON

Resere. F. L. Smith Co.,
Magnetic Bldg.,
Gentlemen:-
Milwaukee, Wis.

We beg to advise you that in July 1908 you shipped to us
for use at Douglas, Wyoming, one 4-Symon's Gyration Rock Crusher with
the capacity of 200 tons per day, and also one of your smaller sizes
of jaw crusher, with a capacity of 75 tons per day.

These crushers were in constant use for a period of a year
and a half. They have given entire satisfaction and met fully the
requirements with a minimum expense for repairs.

We are entirely satisfied with the operation of these crushers
and expect to place an order for others on our southern work in the near
future.

Yours very truly,
ANDREWS HYDRAULIC CONSTRUCTION CO.
[Signature]

AMERICAN SAND & GRAVEL CO.

CANTONVILLE, ILL.

Sept. 6th, 1910

The T. L. Smith Co.,
Gentlemen:
Milwaukee, Wis.

We are still running the same No. 8 Symon's Crusher,
the Canton City Sand Co. bought from you five years ago
and it is doing good work.

Yours truly,
[Signature]
Central Sand Co.

Write for Catalog No. 166

THE T. L. SMITH COMPANY

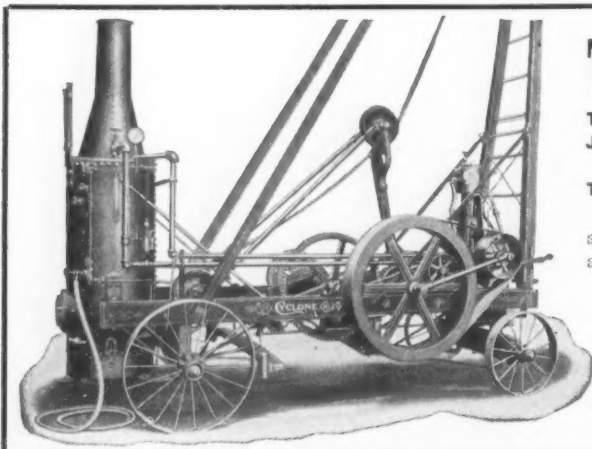
1322 Majestic Bldg.

MILWAUKEE, WIS.

Old Colony Bldg.

CHICAGO, ILL.

Tell 'em you saw it in ROCK PRODUCTS



The Cyclone Wins Again

THE CONSTANT WINNING OF CONTESTS BY THE CYCLONE DRILLS DOESN'T JUST HAPPEN—there is a reason for it.

The **CONSTRUCTION, MATERIAL** and **PRINCIPLE** which enter into these drills are THE REASONS.

The test completed in the quarry of the U. S. Crushed Stone Company, at McCook, Illinois again demonstrates the superiority of the Cyclone drill from point of speed and maintenance; it adds another link in the chain of evidence that Cyclone drills are built right and run right.

This is the reason why the U. S. and Canadian Governments, as well as the largest quarry people and railroad contractors, buy Cyclones.

WRITE US TO-DAY—DEPT. "20"

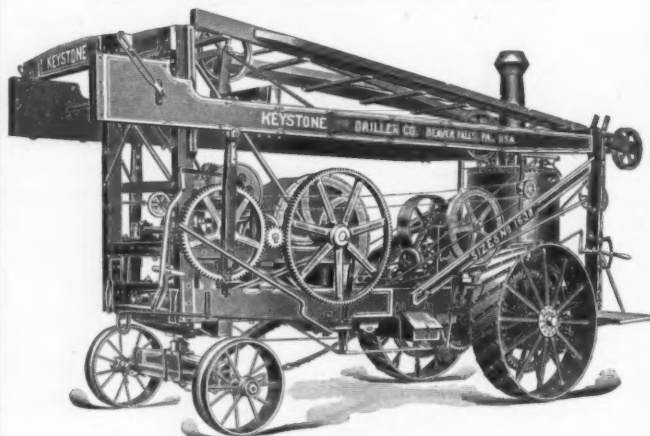
THE CYCLONE DRILL COMPANY,

ORRVILLE, OHIO

CHICAGO OFFICE—419 Fisher Bldg.

NEW YORK OFFICE—1456 Hudson Terminal Bldg.

For Big Blast Holes KEYSTONE CABLE DRILLS



Catalog No. 4

Keystone Traction Drill Co.

Monadnock Bldg.,
CHICAGO

BEAVER FALLS, PA.,
170 Broadway, New York

CARTHAGE,
MISSOURI

WATCH

your present maintenance costs—
then install

Tisco Manganese Steel Crusher Parts

and you will appreciate the wear
resisting properties of this steel
and be surprised at the economy
you find.

Ask for Bulletins 104 or 105.

Does your banker use a TISCO MANGANESE STEEL safe?

TAYLOR IRON & STEEL CO.

High Bridge, New Jersey



Deep Blast Hole Drilling

Is accomplished more economically than by any other method with the

"American" Drilling Machines

There is 40 years' experience behind these drills—they are standard.

Where electric power is available, equipped with motor they form the most portable and economical drill for quarry use.

Equipped with any power they are backed by the experience and reputation of the world's oldest and largest builders of this kind of drilling machinery.

Tell us your blast hole requirements. We have 59 regular styles and sizes of machines for your selection, made in types to meet every possible condition of work.

Write for our new catalog No. 105, the most complete "Drill-Hole" catalog ever issued.

THE AMERICAN WELL WORKS

General Office and Works: AURORA, ILL., U. S. A. Chicago Office: First National Bank Building

Tell 'em you saw it in ROCK PRODUCTS



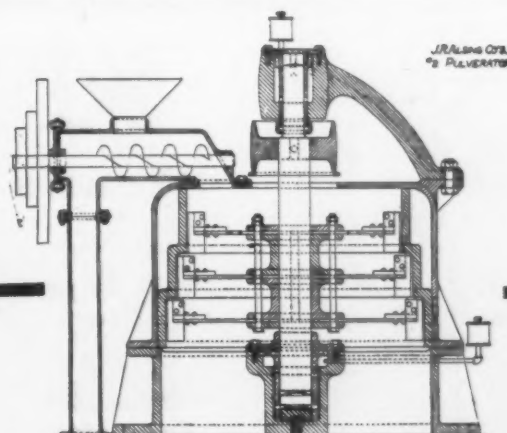
95-C IN SANDUSKY PORTLAND CEMENT COMPANY'S QUARRY

Bucyrus Shovels Are Loading Crushed Stone and Digging Blasted or Unblasted Cement Rock in the Leading Quarries in the United States.

THE BUCYRUS CO.

Branch Offices:
NEW YORK
SAN FRANCISCO
CHICAGO
DENVER
SPOKANE

P. O. Box T
South Milwaukee, Wis.



THE ALSING PULVERATOR No. 2

These machines are designed for very fine grinding and will reduce the material from a $2\frac{1}{2}$ inch size to an impalpable powder. The grinding is done by the percussion principle instead of abrasion, etc., as in other makes. These Pulverators have demonstrated by actual use a great saving in cost of wear, tear, and maintenance. Simple in construction with fewer intricate parts to get out of order. They are so substantially constructed they will last a lifetime.

The J. R. Alsing Engineering Co.

INCORPORATED
30 WEST STREET, NEW YORK

VULCAN STEAM AND ELECTRIC SHOVELS



Giant Class "D" 85 Ton Shovel Loading Blasted Rock

For general excavating, loading blasted and unblasted rock, grading, stripping, tunneling, sewer, trench digging, etc.

Traction wheels or railroad trucks.

Steam or electric power.

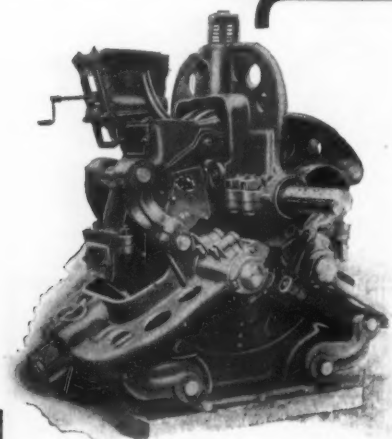
All standard sizes, $\frac{1}{2}$ to 5 cubic yard dippers.

Revolving types, $\frac{1}{2}$ to $1\frac{1}{2}$ cubic yard dippers.

WRITE
TODAY FOR
FULL INFORMATION

THE VULCAN STEAM SHOVEL CO., TOLEDO, OHIO

Tell 'em you saw it in ROCK PRODUCTS



MAXECON

Means MAXimum of ECONomy

Years of experience with the assistance of our hundreds of customers has found THE SOLUTION OF GRINDING HARD MATERIALS. The MAXECON PULVERIZER combines highest EFFICIENCY, greatest DURABILITY and assured RELIABILITY. Uses the LEAST HORSE POWER per capacity. Embodies the features of our Kent Mill with improvements that make it MAXECON.

WE DO NOT CLAIM ALL of the CREDIT for this achievement

We have enjoyed the valuable suggestions of the engineers of the Universal Portland Cement Co. (U. S. Steel Corp.), Sandusky P. C. Co., Chicago Portland C. Co., Marquette Cement Mfg. Co., Western P. C. Co., Cowham Engineering Co., Ironton P. C. Co., Alpena P. C. Co., Castalia P. C. Co., Pennsylvania P. C. Co., and many other patrons.

THE RING WOBBLES

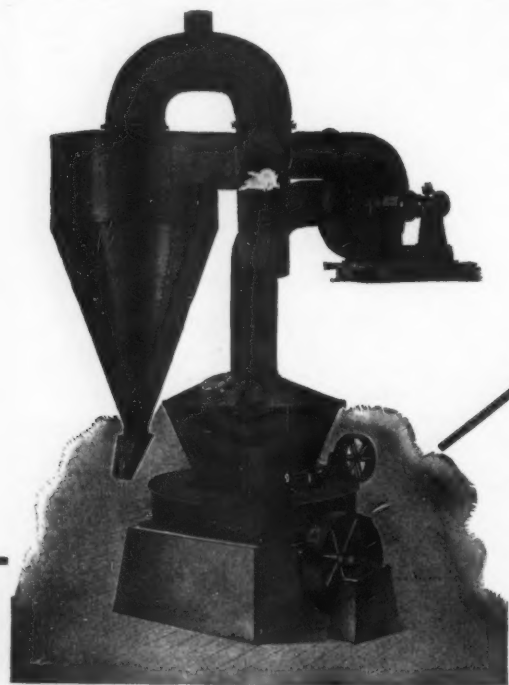
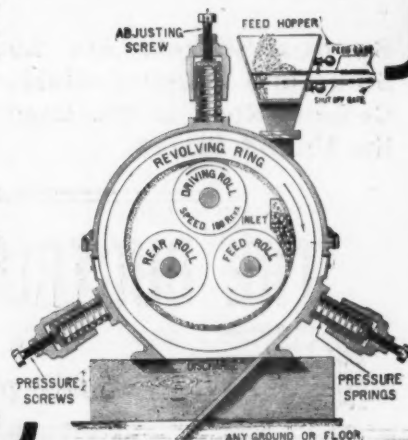
The FREE WOBBLING POUNDING RING instantly and automatically ADAPTS its position to the variations of work.

Its GRINDING ACTION is DIFFERENT than any other; besides the STRAIGHT rolling action of the rolls, the SIDE to SIDE motion of the ring makes the material subject to TWO crushing forces and DOUBLE OUTPUT results.

See it at the Chicago Cement Show, Coliseum, February 17-23, 1911

KENT MILL CO.

170 BROADWAY, NEW YORK CITY
LONDON, W. C., 31 HIGH HOLBORN
CHARLOTTENBURG 5, WINDSCHEID STRASSE 31, BERLIN



65%

SAVING

IN COST OF

GRINDING COAL

AT A

CEMENT PLANT

A Cement Manufacturer ground in 1907—Thirteen Thousand Tons Coal

Using the Raymond Roller Mill with Air Separation

The cost to him for grinding was per ton—Twelve and One Half Cents.

In 1906—The same manufacturer ground his coal in a Ball and Hammer Mill, with the necessary auxiliary machinery instead of Air Separation. The cost to him for grinding was per ton—Thirty Three and Six-tenths Cents.

We cite these figures as simply typical of the extremely satisfactory results secured by our customers with the Raymond System, in grinding and handling all kinds of materials, from coal to dry paint colors, from limestone to alfalfa.

To the manufacturer who grinds any material whatsoever, we say—"You are probably losing profits if you are not using the Raymond System of Grinding and Separating." We are always ready to "show you."

Raymond Brothers Impact Pulverizer Co. 517 Laflin St., CHICAGO

Tell 'em you saw it in ROCK PRODUCTS

MACHINERY

— FOR —

Industrial Plants



We manufacture machinery for transmitting power, and for elevating and conveying materials in and about cement plants, rock crushing plants, lime plants, mortar works, plaster works, and other industries.

We manufacture screw conveyors, belt conveyors, and all sorts of chain and cable conveyors, for handling rock, lime, sand, etc.

We manufacture elevators, also, for handling the same kinds of material. Our lines include shafting, couplings, bearings, collars, pulleys, gears, rope sheaves, sprocket wheels, elevator buckets and bolts, steel elevator casings, etc.

We have our own foundry, sheet metal department and machine shop. We employ first-class help in all departments and use high-grade materials.

When you are in need of anything in our line, try us.

Catalog No. 34

H. W. Caldwell & Son Co.

17th St. and Western Ave., Chicago

Fulton Bldg., Hudson Terminal, No. 50 Church St.
NEW YORK CITY

Rubber Belting Troubles Overcome

Every difficulty heretofore met with in the use of rubber belting entirely eliminated in

"R. F. & C." (Rubber Filled and Covered) Solid woven rubber belting.
Ask us for sample and further information.

W. H. SALISBURY & CO., Inc.

Est. 1855

166-168 Wabash Ave., Chicago, Ill.



NOTICE

When placing orders for Stitched Cotton Duck Belting do not rely on discount, but examine list on which such discount is based.

We understand some makers of Stitched Cotton Duck Belting have advanced their price list. We have no agreement with any makers, and for the present shall adhere to the old list adopted by us January 1st, 1904. This list is lower than the new list, and especially is this true of the wide and heavy belts. In anticipation of an increased demand for belting of this character we have added to our stock sizes, and can now ship on receipt of order any width or any ply from 1" 4-ply to 30" 10-ply.

To insure your getting the best belt for the least money, look for the stamp "THE GANDY BELT" and for our trademark, a coil of belt and a ball of cotton. Every belt that leaves our factory is so branded and is guaranteed to give entire satisfaction. THE GANDY BELT is the most durable and economical belting for all purposes. Send us your orders. Write for our free booklet "Experiences with Gandy" showing the work our belting is doing under varying conditions in all lines of industry.

The Gandy Belting Company

744 West Pratt Street, Baltimore, Md.

New York Office: 88-90 Reade St.

Important!

If you men of Stone, Rock and Ballast who close down your plants during the severe winter months, will make it a point when suspending operations to examine your

LEVIATHAN BELTS

and other brands that you may have in use, then make it a point to note their comparative conditions when you begin operations for the next season, you will then make it a point to specify LEVIATHAN on your further orders for Belting.

LEVIATHAN is improved by age. Other Belts are disproved.

Main Belting Company

Philadelphia, Chicago, New York, Boston, Pittsburgh, Montreal

"NESTOR"

UNSURPASSED FOR ECONOMICAL

ELEVATING — TRANSMISSION — CONVEYING

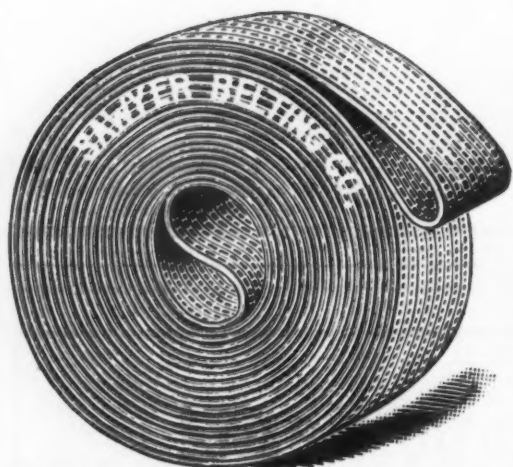
AGENTS IN ALL PRINCIPAL CITIES

THE AMERICAN FABRIC BELTING COMPANY

CLEVELAND, OHIO.

Tell 'em you saw it in ROCK PRODUCTS

THE ONLY WAY



TO APPRECIATE THE
ECONOMICAL VALUE
 OF SAWYER STITCHED
 CANVAS BELTING IS TO
**GIVE IT A TRIAL. IT'S
 BEEN MAKING GOOD
 FOR TWENTY YEARS.**

**FOR FLAT, TROUGH, OR BUCKET ELEVATING, MAIN DRIV-
 ING, IT HAS PROVEN ITSELF TIME AND TIME AGAIN**

A GENUINE MONEY SAVER

ADDRESS ENG. DEPT.

SAWYER BELTING CO.

CLEVELAND, O.

**Do You Have Cars to Haul ?
 The Davenport Locomotive
 Will Save Money**



**Special Designs for Special Purposes
 Any Size, Any Gauge, Any Weight
 Write for Prices and Particulars**

DAVENPORT LOCOMOTIVE WORKS

DAVENPORT, IOWA

BRANCH OFFICES:

Chicago, 12 and 14 So. Canal St. Minneapolis, 107 3d Ave. No.

Seattle, 1215 1st Ave. So.

F. H. Hopkins & Co., Montreal, Que., Canadian Representatives

"Lakewood Line"

Quarry Equipment
Our Specialty

**Quarry Cars
 Portable Track
 and Switches**

WRITE FOR CATALOG

Ohio Ceramic Engineering Company

1015 First National Bank Building

CHICAGO

FACTORY,

CLEVELAND, OHIO

Tell 'em you saw it in ROCK PRODUCTS

Williams Raw Material Grinders

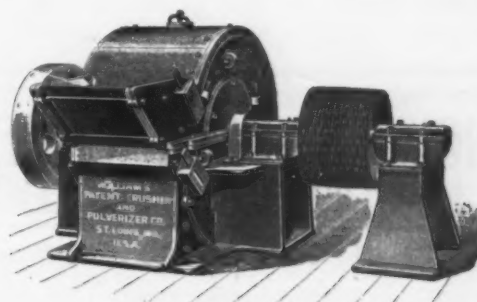


The "New Williams" Universal, our fine grinder, is used for preliminary work ahead of the Tube Mill, capacity No. 3 size, 800 bbls. in 22 hours, 95 per cent. through 20 mesh, with 40 to 50 horse power.

Also used extensively for fine grinding on Gypsum, Lime, Coal and Shale.

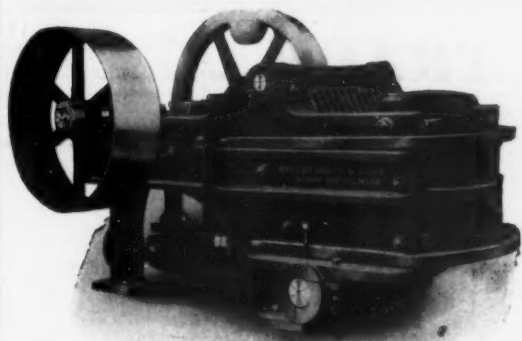
The "Vulcanite" Mill, our coarse grinder, prepares raw material ahead of Roller Mills. The No. 3 size has a capacity of 20 tons per hour, fineness, $\frac{1}{4}$ -inch, $\frac{1}{4}$ -inch and $\frac{1}{8}$ -inch, horse power 40 to 45.

Over 1550 machines in daily operation.
Bulletin No. 12 gives further details.



The Williams Patent Crusher & Pulverizer Co.

Works: 2701 North Broadway, St. Louis, Mo.
Sales Office: Old Colony Building, Chicago
San Francisco Offices: 428 Monadnock Building



Nippers—made in 3 sizes.

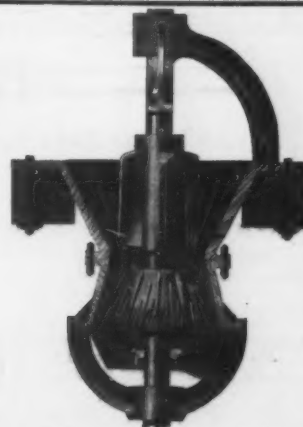
Jaw and Rotary CRUSHERS

For all Rocks and Ores Softer than Quarts

GYPSUM MACHINERY — We design modern Plaster Mills and make all necessary Machinery, including Kettles, Nippers, Crackers, Buhns, Screens, Elevators, Shafting, etc.

Special Crusher-Grinders for Lime

Butterworth & Lowe
17 Huron Street, Grand Rapids, Mich.



Crackers—5 sizes—many variations.

GET THE BEST Finest Line of Gypsum Machinery

MADE

KETTLE CRUSHER NIPPERS

ASK FOR CATALOG OF

MOGUL NIPPERS. OPEN DOOR POT CRUSHERS

Best Mills in the United States Have Them

MCDONNELL BOILER & IRON WORKS, Des Moines, Iowa, U. S. A.

"Formerly Des Moines Mfg. & Supply Co."

Tell 'em you saw it in ROCK PRODUCTS

Dealers
or
Contractors:
Write for
Samples,
Prices and
Particulars.
You will be
Interested

We Carry a Full Assortment of Sizes of Beaver Board

The Most Beautiful, Durable and Economical Covering
for all Kinds of Walls and Ceilings. Takes
the Place of Lath and Plastering.

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KING'S WINDSOR CEMENT FOR PLASTERING WALLS AND CEILINGS

Buffalo Branch, CHAS. C. CALKINS, Manager
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Not the hardest, but the toughest and best Wall Plaster made—Can
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DESIGNING, CONSTRUCTING AND OPERATING
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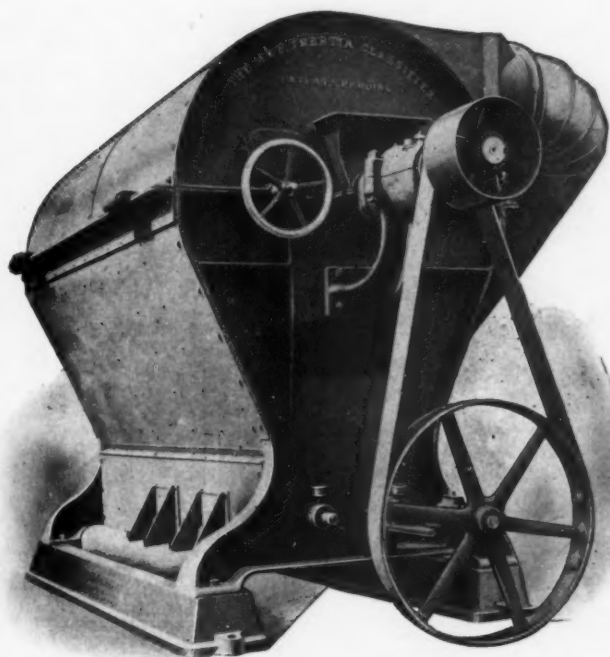
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Adjustable for making separations from 80 mesh to 200 mesh.

Intake capacity from 5 to 10 tons per hour

Separations as positive as can be made on screens, with no perceptible variations in product owing to the variations of the speed or load.

Requires no more space than a Reel or Screen and the capacity is 20 times as great.

Material can be spouted direct from elevator head into machine.

No dust collectors or air spouts required.

We recommend its use in connection with gradual reduction on all classes of material where fine product is required. Write for more information.

Manufacturers of Jaw and Rotary Crushers for Gypsum, Vibrating Screens, Hair Pickers, Wood Fibre Machines, Calcining Kettles, Plaster Mixers, Power Transmission

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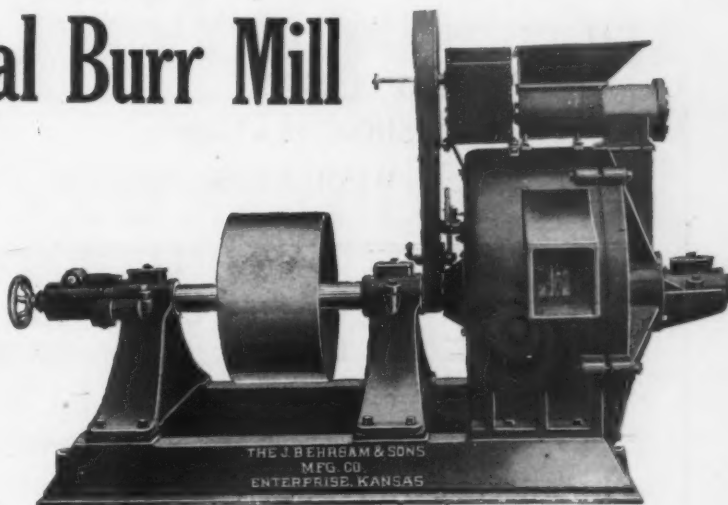
is especially designed for grinding gypsum, limestone, coal, coke, paint, rock, foundry facing, carbon, salt, and other similar substances.

It is **STRONG** and **DURABLY** built.

Has **INTERCHANGEABLE STONES**, which can be easily removed for dressing and replaced.

Is provided with our **POSITIVE CONTROLLABLE FEEDER**, which feeds an absolutely uniform stream into the mill at the required capacity.

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Designers and Builders of

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Improved
Modern
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Fire-Proof
Insulating
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KING'S FIBROUS PLASTER BOARD

Standard Size 32" x 36" x 1/4"

THE RESULT OF TRADE DEMANDS

STRENGTHENED to stand the GREATEST STRAIN to which such material is submitted
TOUGHENED to a woody consistency to stand NAILING AND HANDLING
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SERVICE The location of our works at the greatest railroad terminus in the East and our several warehouses enable us to make **Prompt Shipments at all times.**

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Stucco Retarder

Strong
Uniform
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RETARDER

We are the oldest Retarder firm in the United States, and above is our motto. New fire-proof plant and prompt service.

FREE SAMPLE ON REQUEST

Chemical Stucco Retarder Co.

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FOR

**CALCINING
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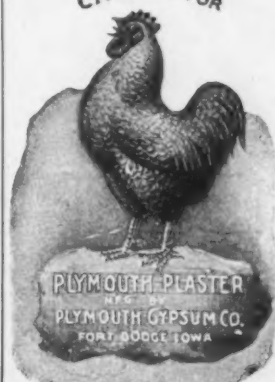
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**PLYMOUTH
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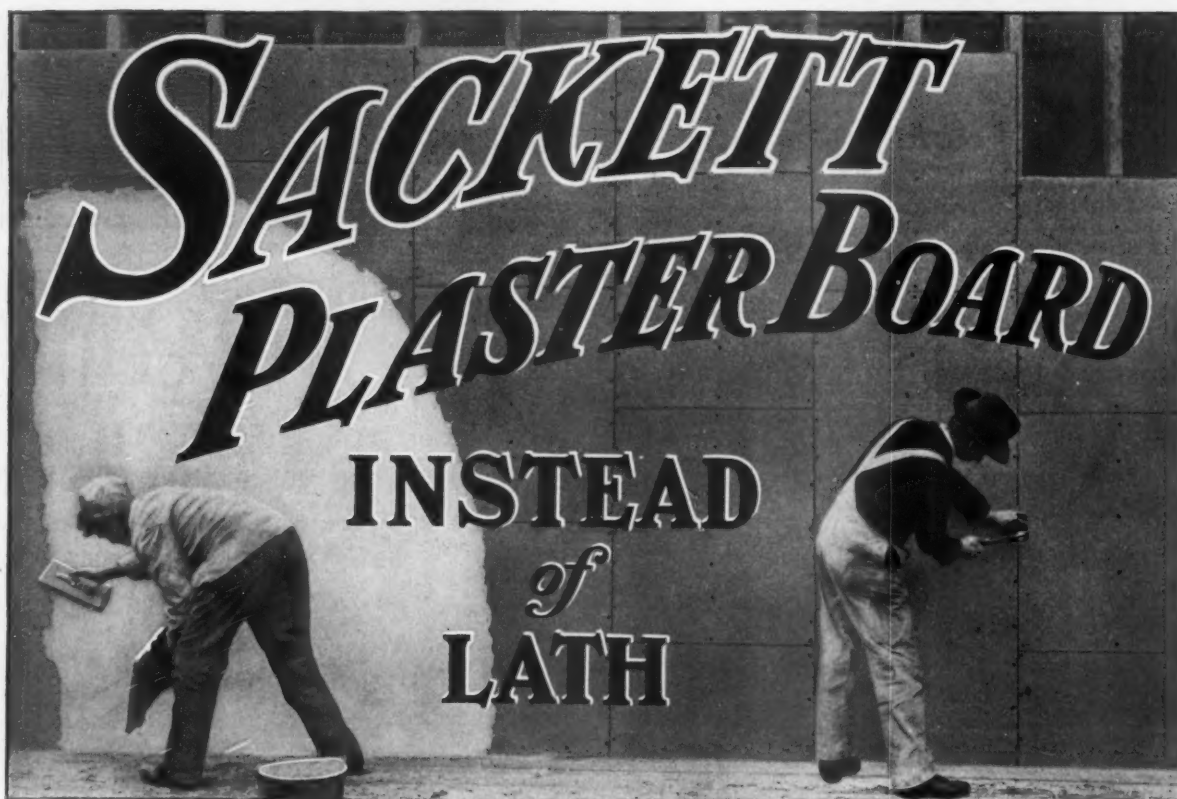
THE OHIO and BINNS RETARDER CO.
PORT CLINTON, OHIO

Reliable Stucco Retarder=Strong=Uniform in Strength=
Duplicate power plant (electric and steam power) installed so as to preclude any possibility of shut down and consequent shut down of mixers who depend upon us for their supply of Retarder. We have a capacity large enough to supply every retarder user in the U. S. and Canada, and some to spare for Europe. Our mills are fireproof in every particular. Write us for prices and information.

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Good Judgment Demands



THE VOICE OF EXPERIENCE

There's nothing new fangled about SACKETT Plaster Board. It has stood the test of time, demonstrating its superiority over other methods of lathing—received and approved by the entire building world.

SACKETT PLASTER BOARD

Fireproof Soundproof Verminproof

is a staple, quick selling commodity in every up-to-date dealer's line. The reason for its rapidly growing demand is self evident—natural demand of architects and builders generally for

BETTER! SAFER! MORE SANITARY WALLS!

If you don't know SACKETT Plaster Board and its many advantages, do yourself the justice to get the facts immediately—facts of vital interest—and profit to you.

We can help you help yourself—Send for the facts at once.



United States Gypsum Company

New York Cleveland Chicago Minneapolis Kansas City San Francisco

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IS THE BRAND

We cannot dwell too strongly upon the increased bulk and consequent greater covering capacities of our "NIAGARA" line of wall plasters, their favorable working qualities under the mechanics' tools and final strength.

Niagara Neat Cement

Niagara Sanded Mortar

Niagara Wood Fibre (Wood Pulp)

Dealers realize the additional dollars in the handling of our products because of their preference by the trade and good sense is displayed in pushing their sale. MIXED CAR LOAD SHIPMENTS of wall plasters, hydrated finishing lime, plaster board, land plaster, and calcined plaster for finishing purposes.

ALL BUSINESS DIRECT WITH SALES OFFICE.

NIAGARA GYPSUM CO.

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Plaster Quality

The highest perfection in the production of plaster has been reached by the

Dakota Plaster Company

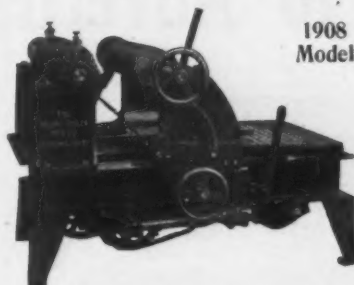


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Listen:**

The Dakota Plaster Company's deposits are 98 per cent Pure Gypsum. Its plant, built in 1910, was erected without regard to cost, and is one of the best equipped and latest improved plaster mills in the world.

The Dakota Plaster Company
Black Hawk and Rapid City, S. D.

The Shuart-Fuller Improved Fiber Machine



1908
Model

Has an automatic, proportional, increasing feed, which keeps grade of fiber uniform from start to finish, and holds machine to highest possible rate of production for the grade of fiber and number of saws. Does not begin with fiber and end with dust, nor fall off in rate of production on each log, from 40 to 80 per cent as do the ordinary non-increasing feed machines. Works logs up to 24x24 inches. No royalty string attached to sale. Pay no attention to misrepresentations of our competitors, but write for descriptive circular and terms to

The Shuart-Fuller Mfg. Co.

ELYRIA, OHIO

St. Louis, June 17, 1907.

THE SHUART-FULLER CO., Elyria, Ohio.
Gentlemen:—We are just in receipt of advice from our New Mexico plant wherein they state that the Wood Fiber Machine recently shipped by you is doing all that we have asked of it and running very fine.

ACME CEMENT PLASTER CO.
By Jas. R. Dougan, Sec.

MANGANESE STEEL

Wearing Parts for all Crushers

MASON SEGMENTAL HEADS
FOR ALL SIZES GYRATORY CRUSHERS

SPUR AND BEVEL GEARING—LONG WEAR AND NO BREAKAGE

STEAM SHOVEL TEETH POINTS and BASES

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KELLASTONE

The Coming Building Material for Floors, Roofs, Exterior and Interior Walls, Porches, Etc. ∴ ∴ Fire, Water and Germ Proof Kellastone Has Stood the Weather Test Perfectly for Over Five Years Can be Applied in any Climate over Wood, Metal, Brick, Concrete or Tile

Independent plants owned and controlled by local people and operating under license from the U. S. Kellastone Co. are being established on a royalty basis throughout the United States AND EXCLUSIVE TERRITORY ASSIGNED them for the manufacture, sale and application of KELLASTONE PRODUCTS under the copyrighted name "KELLASTONE."

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Mr. Bernard L. McNulty,
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Dear Sir:-

In answer to your favor of the 3rd, would state that we have been almost continuous advertisers in Rock Products since the year of 1905 and while not the largest advertisers, we have always felt that the publication paid us handsome returns on the amount expended and we can truly state that the courtesies extended us by the members of your company in the way of write-ups and general help are highly appreciated.

Very truly yours,

CENTURY CEMENT MACHINE CO.

ATB/M

at Madley

SPECIAL NOTICE—All orders are accepted subject to delay occasioned by causes beyond our control, and with the understanding that no claims for damages or losses will be allowed. Our liability ceases when goods are delivered to carrier. ADDRESS ALL LETTERS TO THE COMPANY.

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ROLLER MILLS, AUTOMATIC PULVERIZERS
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CHICAGO, May 6, 1910.

Rock Products,
355 Dearborn St.,
Chicago.

Gentlemen:

In reply to your inquiry of May 3rd, we have carefully checked up our records and are pleased to advise that the inquiries we have received as a result of our Ad. in your paper cost us less than from any other high class medium in which we advertise and we have been able to trace some profitable business closed through our advertisement.

Trusting this covers the ground to your satisfaction, we remain,

Yours very truly,
RAYMOND BROS. IMPACT PULVERIZER CO.

C. M. Lauritzen
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We want to establish Tesco Marble Factories in the following cities:

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Since Tesco Marble is a real marble in its analysis and surface appearance, the demand has come from all sections of the United States and overwhelmed our present factory facilities in Milwaukee, consequently it becomes absolutely essential to meet the demands.

We are ready to open negotiations with responsible parties for the manufacturing rights in the above named Cities.

Our marble is thoroughly covered by patent rights exclusively our own, thus assuring you of absolute safety on your investment.

Tesco Marble is the marble of the Age. Best financial references required. Full information regarding investment, profits, etc. will be mailed.

Tesco Products Company

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WAYNESBORO, PA.

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HIGH CLASS CONCRETE PRODUCTS

CEMENT ART WORK

Write for Pamphlets to Concrete Workers on
CONFIDENTIAL Trade Notes

DO YOU KNOW

What pipe molds are specified by the U. S. Reclamation Service?

What kind are used by 250 cities and towns in the United States?

The Miracle



made and sold exclusively by the Marsh Co., Chicago. Cement pipe is in big demand everywhere. Read this from Heath Hardware Co., Monroe, N. C., Sales Agents for one of the largest cement pipe plants in the state.

MARSH Co., Chicago

Gentlemen:—We have sold all the pipe made by the plant here, and find that it has been giving perfect satisfaction for culverts, well curbing, etc. In fact, our city will use no other kind, claiming that it is far superior to clay which soon rots out. The plant is busy the year 'round, and we are always behind on orders.

Yours truly

HEATH HARDWARE CO.

Profits Big—Investment Small

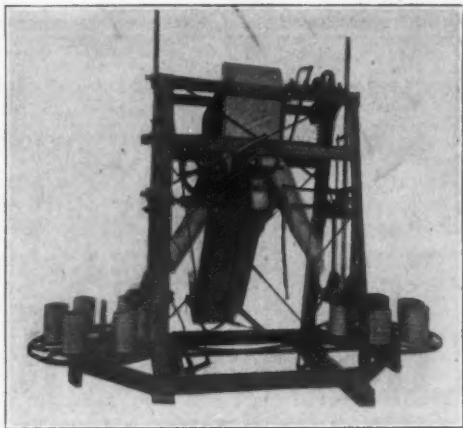
Investigate now for Spring.
Ask for Sewer Pipe Catalog

MARSH CO.

971 Old Colony Building
CHICAGO

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THE McCracken Double Tile Machine



The McCracken Double Tile Machine makes all sizes of cement tile from 4 to 16 in. in diameter at the rate of from 10 to 20 tile per minute. Also makes building blocks or construction tile 8x8x16 at the rate of 2000 to 3000 per ten hour day.

The machine will make two different sizes of tile at the same time or building blocks and tile at the same time, or either end of machine can be used without using the other.

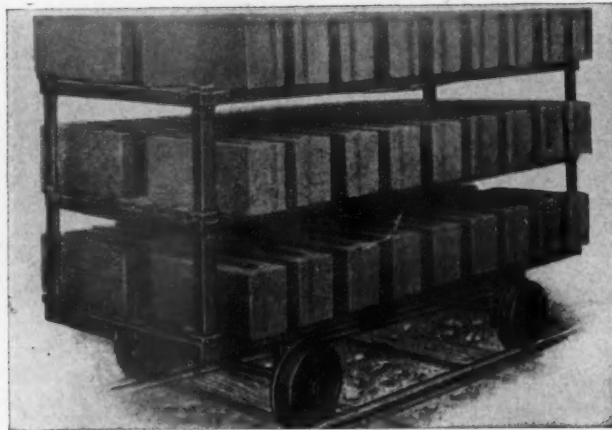
The machine has no cams and runs just as smooth at high speed as when running slow. Takes less labor per 1000 tile than any other machine.

Tile are packed so hard that the large sizes can be carried without the use of pallets. Machine is very simple and strong and runs very light, and elevator can be started and stopped without stopping the machine.

See the McCracken Machine before you buy. Write to

The Sioux City Cement Machinery Company
219 4th Street, SIOUX CITY, IOWA

The Chase Roller Bearing Car FOR CEMENT, BLOCK AND TILE



BOTTOM AND SIDE DUMP CARS, TRANSFER CARS, TURNTABLES, SWITCHES, ETC.

You cannot afford to overlook the necessity of handling your material and product as economically as your competitor. Our goods will help you do this.

WRITE US FOR CATALOG AND PRICES

Chase Foundry Manufacturing Co.
COLUMBUS, OHIO

PERFECTION IN BLOCK MAKING

If you wish to attain this you should combine these three important features:

**Wet Process, Face Down,
Damp Curing.**

The PETTYJOHN INVINCIBLE Machine does this, and is the only machine that does. Tandem Invincible makes two blocks at once. Price \$65.00 and up. Single Invincible, \$35.00 and up. With our Triple Tier Racking System green blocks can be stacked three high direct from machine with inexpensive home-made rigging. Plans and blue prints free to customers. It economizes space, reduces off-bearing distance and above all insures slow, even, damp and perfect curing and bleaching.

Write for our latest edition of "Stone Making," a book of valuable data, just off the press—FREE

THE PETTYJOHN COMPANY

614 North Sixth Street Terre Haute, Indiana

Red, Brown, Buff and Black



**MORTAR
COLORS**



The Strongest and
Most Economical
in the Market.

Our Metallic Paints and Mortar Colors are unsurpassed in strength, fineness, and body, durability, covering power and permanency of color. Write for samples and quotations.

CHATTANOOGA PAINT CO.

Chattanooga, Tennessee

The Schenk Cement Drain Tile Machine

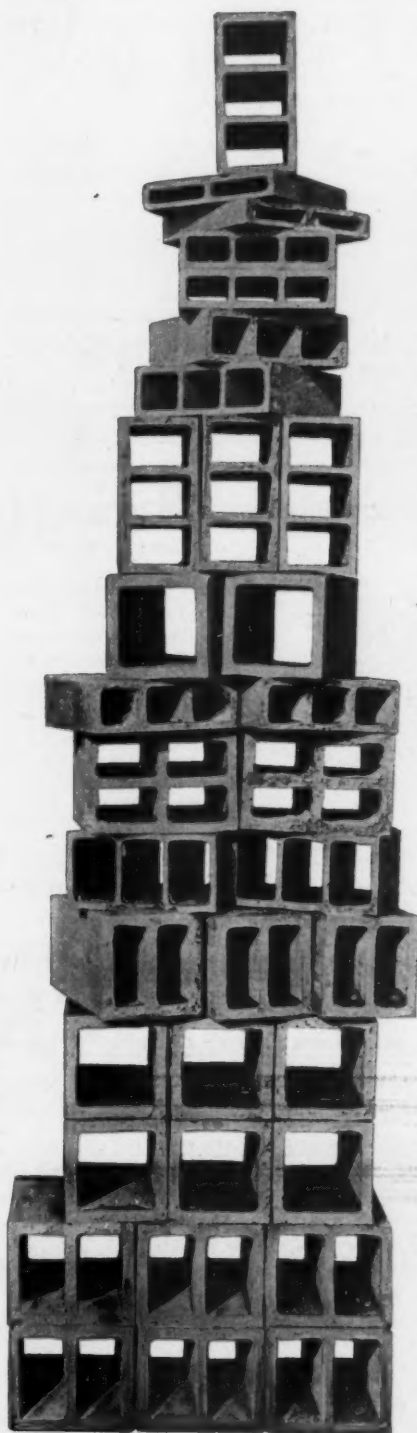


The Schenk Machine has a capacity of from 3,000 to 5,000 cement drain tile in ten hours; it requires the aid of six men, a mixer and power to operate. The Schenk is sold on an iron-clad guarantee and is backed by the basic patents and the oldest and strongest company in the business.

Our free catalog will give you information relative to the equipment necessary, the construction of buildings, the amount of capital required, and the amount of profit to be expected; in fact it tells you how to start a cement drain tile plant and what you will be able to realize on the investment.

The Cement Tile Machinery Co. Rath Street
Waterloo, Iowa

Tell 'em you saw it in ROCK PRODUCTS



Has The First *Pauly* Concrete Tile Plant Been Successful?

This question, which is usually first asked us by interested parties, is best answered by two facts:—1. During the year of 1909, the demand in Youngstown, Ohio, could not be satisfied, and (2) the plants capacity output is sold until the middle of the summer of 1910, in the City of Youngstown alone. In this connection it might be stated also that 4 tiles of our most common size, 8x8x16, can be manufactured from one cubic foot of concrete, with a labor cost of 50 per cent of the cost of concrete anywhere east of the Mississippi.

A weatherproof home of fireproof material can now be built for almost wooden construction cost. These points have been clearly demonstrated in Youngstown by practical use of *Pauly* Concrete Structural and Fireproofing Tile, in a variety of buildings. The result gained has not only been a financial success, but also an enviable position in the estimation of the entire building public.

Persons interested in this practical and profitable phase of the concrete business, are always welcome by the The Concrete Stone & Sand Co., Youngstown, Ohio, where they will be shown every detail of the initial factory.

Our 1910 Catalog

Gives the method of manufacture, fire and compression test data, and the endorsements of local architects and other building authorities. Also many other articles and illustrations of interest to the general public. May we send you, postpaid, a copy of our Catalog?

The Concrete Stone & Sand Co.
Youngstown, Ohio.



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HERCULES BLOCK MACHINES

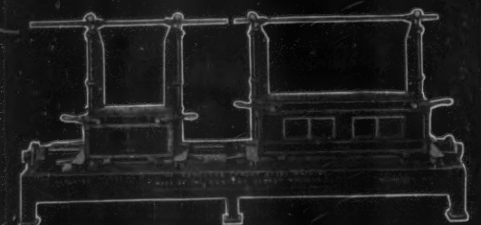
ARE THE FASTEST, SIMPLEST,
STRONGEST AND
BEST MACHINES BUILT

AND WE CAN PROVE IT
THEY EXPAND TO MEET EVERY DEMAND

THE ONLY machine making any size of stone from a 3 inch block to a 6 foot water table.

THE ONLY face down machine that allows for a really coarse WET mixture with fine facing.

THE ONLY machine on which four 16 inch stone can be made at ONE time, or two 20 inch, 24 inch or 32 inch stone at one time.



THE HERCULES IS AN OLD
ESTABLISHED MACHINE

Built along Correct Lines and Endorsed by the Leading Contractors and Builders. They are used in all parts of the world.

Hercules Machines

are the BEST for you—Because they go Further—Do more and Do it Better than other machines.

They are unlimited as to production. You can start with a small equipment and add to it gradually according to the demand. And not be compelled to be continually buying new machines.

If you are going to manufacture Concrete Blocks write for our Catalogue.

Century Cement Machine

Co. 288-298 St.
Paul Street
ROCHESTER, N. Y.

Perfection at Last Attained in the Concrete Block Industry

The Perfection Power Block Machine is the only Power Block Machine on the market, making a Hollow Concrete Building Block under Heavy Pressure and at Great Speed.

Machines have been in constant use since July 1st, 1905, with practically no expense for repairs.

The machine handles sand, gravel, crushed rock, slag and coloring materials perfectly.

All materials accurately measured, thoroughly mixed and uniformly pressed under 200,000 pounds pressure.

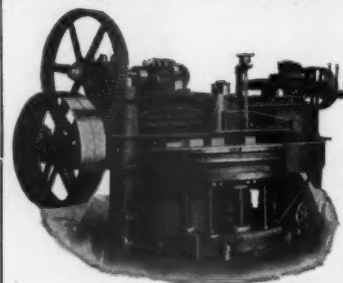
Makes 8, 9 and 12x8x24 inch blocks in five faces, and fractional and angle blocks. Machine can be arranged to make Two Piece and Faced Blocks, if desired.

All machines delivered set up and put in operation to show a guaranteed capacity of 60 blocks (12x8x24 inch) per hour with five men.

Blocks perfectly cured in 24 hours in Vapor Curing Kilns of our own design. Full details, catalog, testimonials, etc., sent upon request.

THE PERFECTION BLOCK MACHINE CO.
SIOUX FALLS, SOUTH DAKOTA.

The American Sandstone Brick Machinery Co. SAGINAW, MICH.



Improved Saginaw Rotary Press.

Built either right or left handed in three sizes of capacities of 800, 1400 and 2200 brick per hour. Can be equipped with extra table for making face and fancy brick on which double pressure is exerted.

Complete Sandstone Brick Plants or Partial Equipments Installed Under Absolute Guarantees as to Capacity, Quality, and Cost of Production.

WE are the oldest manufacturers of Sand Lime Brick Machinery in the U. S. today, and have more successful plants in operation than any other Company. Why not profit by our experience? Send us samples of your sand and let us advise you as to its quality for brick purposes and what machinery you will require to produce the best results. Write for catalogue "C" describing our system in detail.

SAND LIME OR SILICATE BRICK



This plant located at South River, N. J., was formerly intended to operate under the "Division System" but is now being reconstructed to conform in every detail to the Wiebe-Hydro-Lime-Silicate-Process, and will be when completed the largest plant in the United States with a daily capacity of 100,000 brick.

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High efficiency and durability

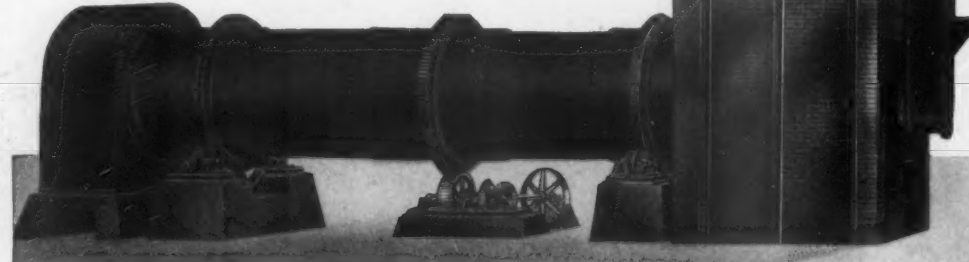
RESUME

Dating as far back as 1901, when the manufacturing of commercial silicate brick was introduced into this country, no system has been more successful than the so called "Silo" or "Division" method.

In the ratio that the Silo or Division Process is superior to all other systems hitherto employed, in that proportion the Wiebe-Hydro-Lime-Silicate process is superior to the Division method.

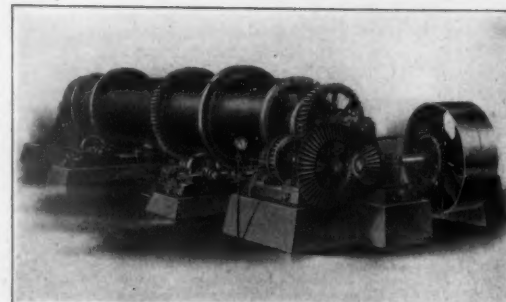
All other processes are commercial impossibilities, and those who are operating under these old methods are losing money and producing an inferior quality of brick.

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MANUFACTURED under the Wiebe Hydro-Lime-Silicate-Process, and by our specially designed machinery, have been acknowledged by leading engineers, architects and organizations of New York City to be the most perfect sand brick in the country. Compression as well as transverse strength, and its non-absorptive qualities far excel the requirements of the city.

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Hydro-Vapor Preparation Machine

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Do you wish to know WHY our process is superior to all others? If you have any experience in the production of silicate brick, and will allow us to show you the merits of our process, you can easily understand why, and you will then readily appreciate the merits thereof. If you are interested we will gladly enter into any detail necessary to demonstrate the superiority of our system over all others.

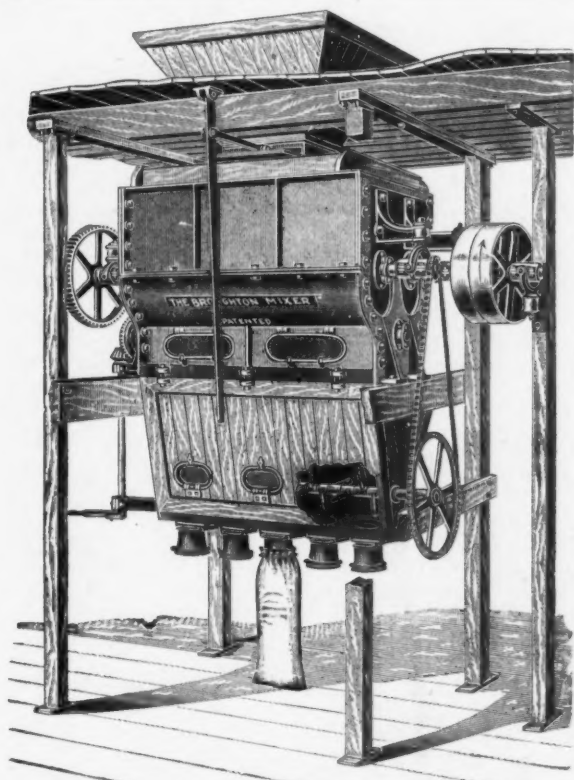
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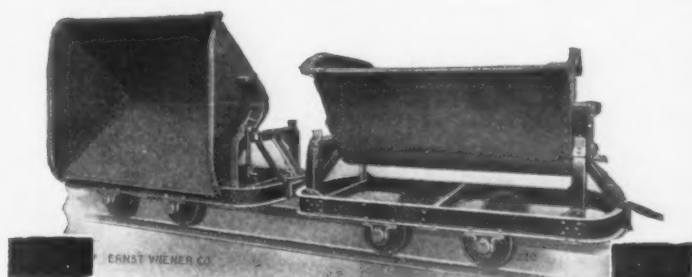
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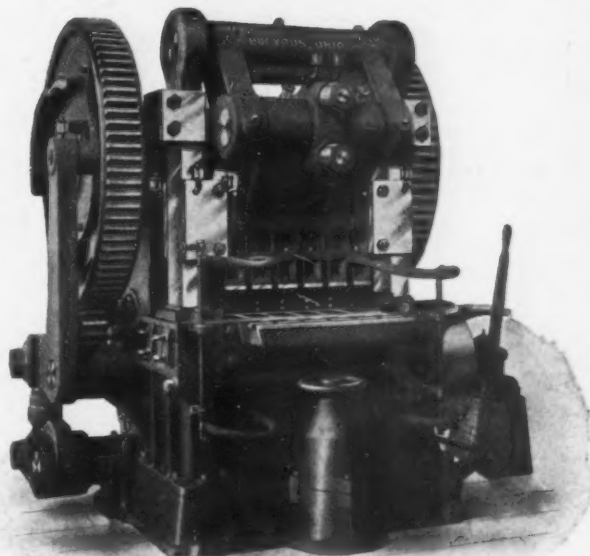
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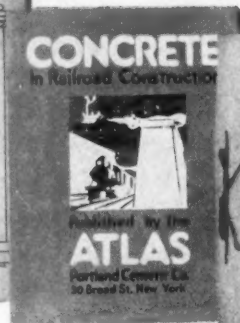
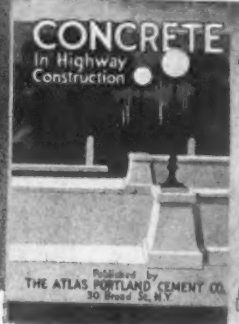
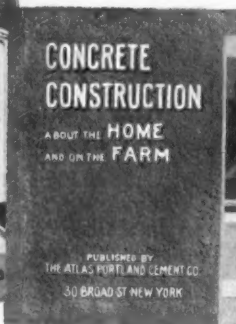
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